PURCHASING

THE NATIONAL MAGAZINE FOR PURCHASING AGENTS • SINCE 1915

MYRON ZOBEL

See page 53

The inside story of C. M. P.

A CONOVER • MAST PUBLICATION

JANUARY, 1943

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SMALL SECTION of one of Texaco's 18 great refineries. Though lights are dimmer now process control is watched more closely than ever to insure uniform product quality.

AROUND the clock, from this and seventeen other modern refineries come sturdy guardians of American Industry's all-out war effort . . . specialized Texaco lubricants and fuels.

To management "burning the midnight oil" to maintain war-winning plant output, these Texaco cutting coolants and lubricants offer a practical, proven means of safely increasing operating speeds, of definitely decreasing down-time for repairs and replacements.

Preferred for performance in the fields listed in the panel, Texaco brings many benefits that can be yours.

Texaco Lubrication Engineers backed by broad experience in war work, will gladly cooperate . . . just phone the nearest of more than 2300 Texaco distributing points in the 48 States, or write:

The Texas Company, 135 East 42nd Street, New York, N. Y.

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★ More stationary Diesel horsepower in the U. S. is lubricated with Texaco than with any other brand.

★ More Diesel horsepower on streamlined trains in the U. S. is lubricated with Texaco than with all other brands combined.

★ More locomotives and cars in the U. S. are lubricated with Texaco than with any other brand.

★ More revenue airline miles in the U. S. are flown with Texaco than with any other brand.

★ More buses, more bus lines and more bus-miles are lubricated with Texaco than with any other brand.

TEXACO

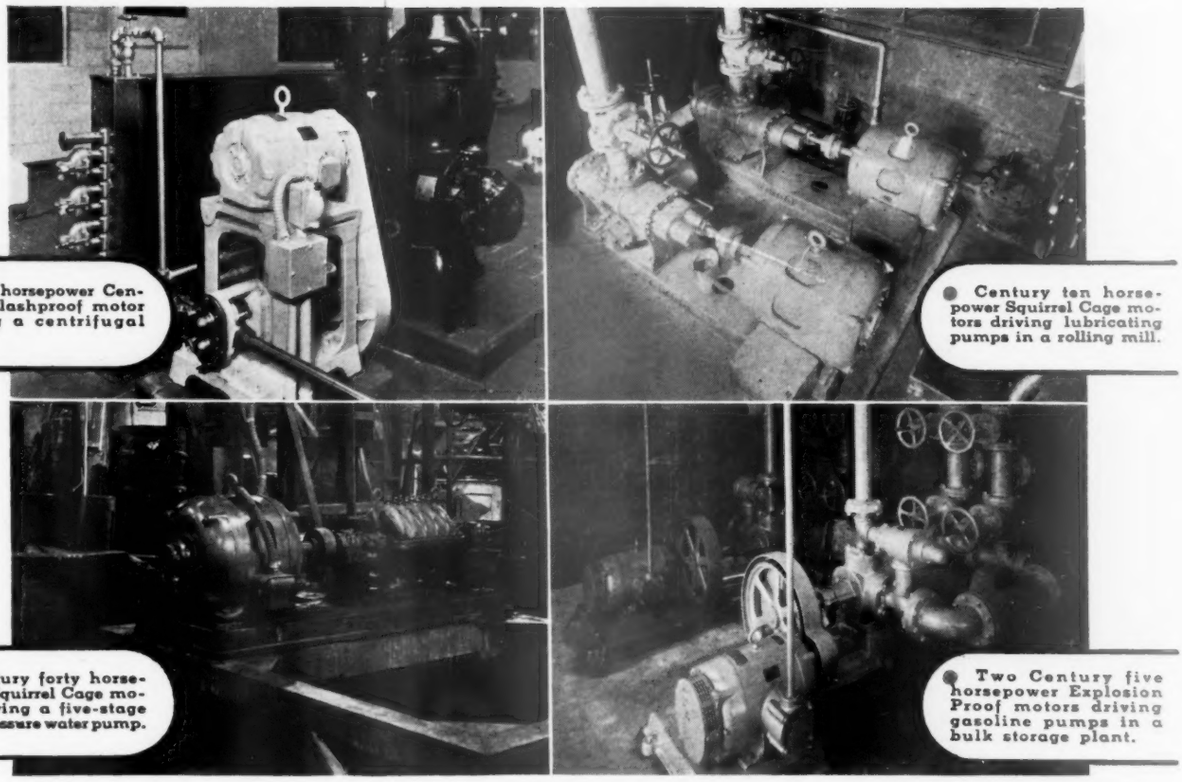
TEXACO Lubricants and Fuels

FOR ALL INDUSTRIES

TUNE IN FRED ALLEN EVERY SUNDAY NIGHT—CBS ★ HELP WIN THE WAR BY RETURNING EMPTY DRUMS PROMPTLY

Tech

TECHNOLOGY DEPT.



● Two horsepower Century Splashproof motor driving a centrifugal pump.

● Century ten horsepower Squirrel Cage motors driving lubricating pumps in a rolling mill.

● Century forty horsepower Squirrel Cage motor driving a five-stage high pressure water pump.

● Two Century five horsepower Explosion Proof motors driving gasoline pumps in a bulk storage plant.

CENTURY MOTORS Meet Your Centrifugal or Reciprocating Pumping Application Requirements In All Types of Atmospheres—on Land or Sea

There's the *right* Century Motor for these and many other pumping requirements:

Water	Gasoline
Oil	Beverages
Brine	Chemicals
Paint	Liquid Drugs

Lubricating Oils and Coolants
Liquid Foods
Hydraulic Machinery
Condensates

—properly protected against these surrounding conditions:

Salt Air
Acid and Alkali Fumes
Dusts
Coolant Spray
Heat and Cold
Moisture
Explosive Grain Dusts (Class II, Group G)
Explosive Gases (Class I, Group D)

304

Century Motors are built to meet practically every type of pumping application efficiently and effectively — on land or sea

Depending upon the surrounding operating conditions, pump installations may require *Century Open, Drip Proof, Splash Proof, Totally Enclosed Fan Cooled, or Explosion Proof Motors.*

To assure peak performance, it's important to select the Century Motor with the proper electrical characteristics. These may vary from low starting torque—low starting current for centrifugal pumps, to high starting torque — normal starting current for reciprocating or gear pumps and for starting other dead load applications.

Century Motors Help You Beat the Production Promise

As in other fields, Century's wide range of motor types and sizes makes it an easy matter to apply the correct motor to pumping uses—motors which match the type of liquid pumped, the pressures desired, and the surrounding working conditions. Your nearest Century Application Engineer and Service Organization will gladly help you with any pumping problem. Call him in today.

CENTURY ELECTRIC CO. • 1806 Pine St., St. Louis, Mo.
Offices and Stock Points in Principal Cities

ONE OF THE LARGEST EXCLUSIVE MOTOR AND GENERATOR MANUFACTURERS IN THE WORLD

PURCHASING, published monthly by Conover-Mast Periodicals, Inc., Publication Office, Orange, Conn. Editorial and Executive Offices, 205 East 42nd St., New York, N. Y. Entered as second-class matter August 8, 1942, at the Post Office in Orange, Conn., under the act of March 3, 1879. Subscription, $3.00 a year in the U. S. A. Canada and Foreign $4.00. Volume XIV, No. 1.

Snap-on Tools

HELP SPEED DISASTER TO THE AXIS!

VICTORIOUS POWER for America's Flying Fortresses...and for many another potent warplane . . . down the long assembly lines at Wright Aeronautical Corporation roll the mighty Cyclone "9s"! Here's bad news in big volume for the Axis everywhere!

On Wright's powered assembly lines high production is accompanied by *high precision* . . . and swift, efficient Snap-on Wrenches play an important part. Many of these Snap-on Tools are specially made or adapted for operations on the line.

The accuracy, flexibility and solid power of Snap-on Wrenches lend extra speed and precision to difficult jobs. From production and assembly line to maintenance shop and far-flung bomber base . . . wherever ships are built and flown and serviced . . . Snap-on Wrenches and Hand Tools have demonstrated their exceptional fitness for aviation's needs. Snap-on's 3,000 tools and direct-to-you service are conveniently near you through 35 factory branches at key aviation centers throughout the United States and Canada. For catalog, write —

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THE CHOICE OF BETTER MECHANICS

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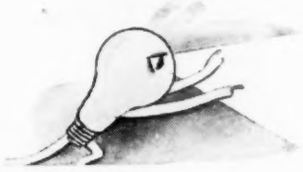
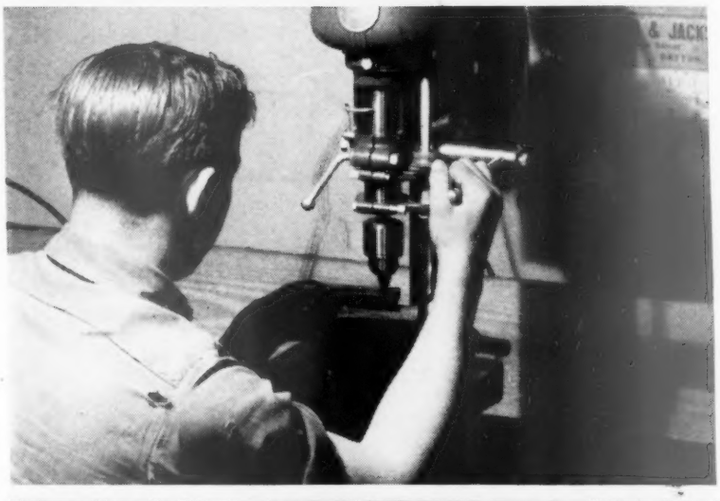
ARE THESE 3 SABOTEURS ON YOUR PAYROLL?

GLARE



These 3 "Saboteurs" can slow up production on any night shift. First—and worst—is *glare* in workers' eyes. Glare from bare or poorly shaded lamps, or from shiny metal surfaces, can hasten fatigue and breed spoilage and accidents. Glare can often be corrected merely by making a few simple changes in existing lighting.



SHADOWS

Shadows on the work are the bane of every mechanic's life. They make it almost impossible to work to the new close tolerances demanded in war production. The remedy may be supplementary lighting on machines. Or raising or lowering existing fixtures. Or both. A G-E lighting engineer can probably tell you the answer. And the last thing he has any idea of is to try to sell you a new lighting installation!

DIRT

Dirt on lamps, fixtures and walls can sabotage the best lighting ever installed! In some cases, light output of brand new G-E fluorescent lighting installations dropped off 50% in a short time simply because no one cleaned the lamps and fixtures. A G-E lighting engineer can help you start a regular maintenance program. Help you get full light from every dollar's worth of lamps and electricity!

MORAL FOR WAR PRODUCTION MEN:

Why not find out whether any of these lighting evils exist in your plant . . . whether lighting can work harder for you? Call your nearest G-E lamp office and they will place a trained Wartime Lighting Counsellor at your service. Or see your local electric service company or your G-E lamp supplier.

G-E MAZDA LAMPS

GENERAL ELECTRIC

When writing General Electric Company please mention Purchasing

Brass..

miles of metal from a modern mill

WAR'S demands for more and more brass are being met on schedule by Western. Modern equipment, like the "hot mill" pictured above, keeps our production in "high." It is rolling out miles of metal each day for the war program.

Perhaps our experience in producing brass for specific needs, and our rigid policy of always *meeting* the specifications, would be useful to *you*—now, for your war needs, or for your post-war commercial production. We'll be glad to discuss your requirements.

Western BRASS PRODUCTS
WESTERN CARTRIDGE COMPANY
EAST ALTON, ILLINOIS, U. S. A.

Brass...Phosphor Bronze...Nickel Silver

BRASS MILL DIVISION

Western Cartridge Company
East Alton, Illinois

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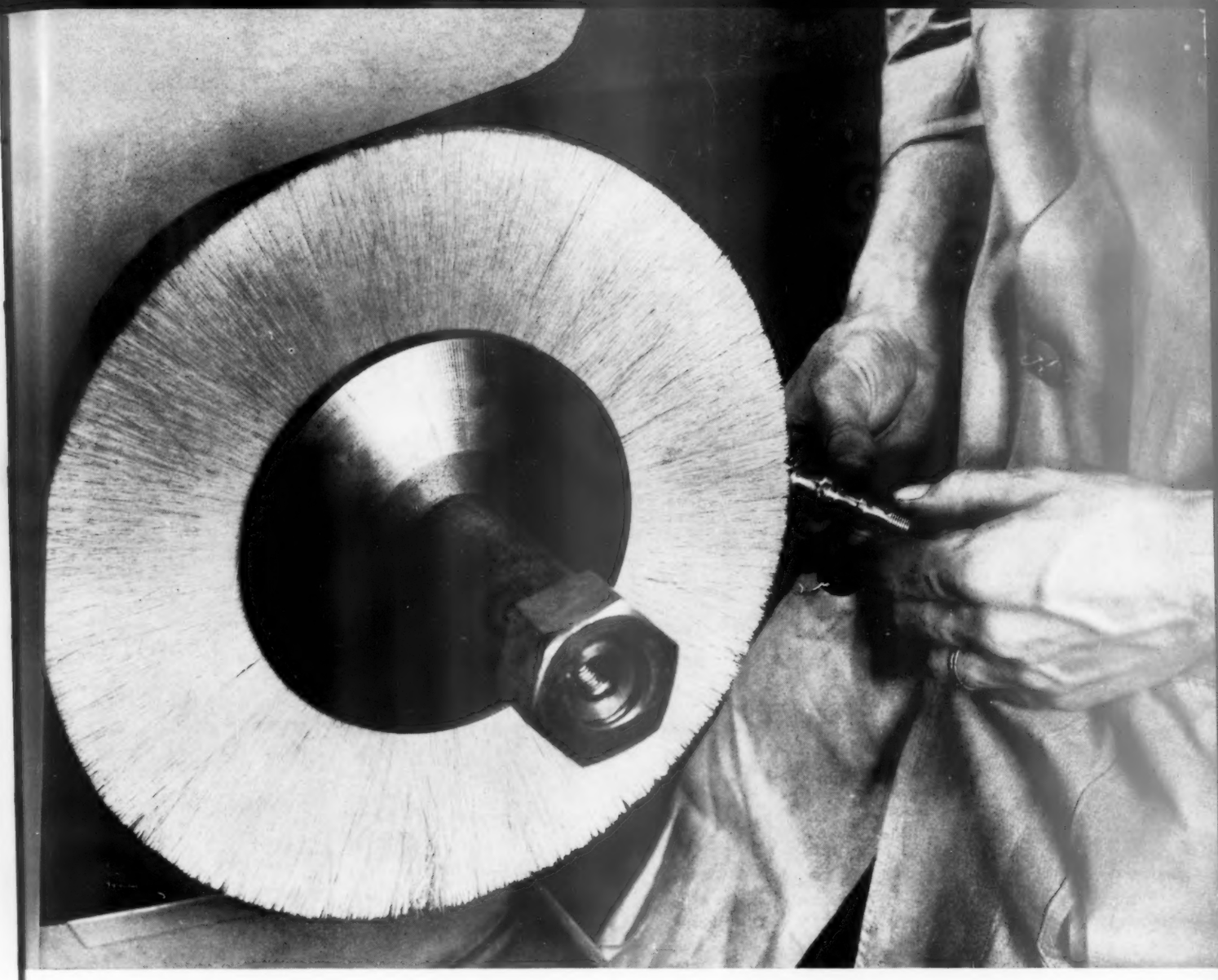

The brush-off that steps up horsepower —thanks to O. B. A.

TO extract every last ounce of horsepower from an aircraft engine, its hundreds of moving parts must be polished—

—Polished to eliminate tool-marks, scratches and other stress concentration points

—Polished to break sharp corners and form radii

—Polished to dig out impurities, expose imperfections

But how to polish great numbers of irregularly shaped pieces—many with sharp angles and deep recesses—accurately, quickly and economically?

That was the problem presented by a major engine builder to Osborn men conducting an O.B.A. (Osborn Brushing Analysis) in the plant. Their recommendation was power-driven "Fascut" Tampico sections, soft but tough, and chemically treated to prevent "flutter" and "knifing", to hold abrasives better, cut faster and wear longer. So successful were these Osborn brushes in blending metal surfaces, rounding corners and exposing minute flaws that brushing with Tampico sections today is virtually standard practice throughout the entire industry.

The Osborn Brushing Analysis (O.B.A.) is available now as an engineering service for increasing production, improving quality and cutting costs in essential war industries. After Victory this same service will be available to all. For details about this service and help on specific problems, get in touch with the Osborn Brushing Specialist in your district, or write *The Osborn Manufacturing Company, 5401 Hamilton Avenue, Cleveland, Ohio.*

Osborn Brushes

WORLD'S LARGEST MANUFACTURER OF BRUSHES FOR INDUSTRY

MACKLIN GRINDING WHEELS

Macklin Field Engineers are experienced in recommending the best Macklin wheel to use on any grinding job. There is a Macklin grinding wheel suited to grind every part required in today's production demands. Ask for the services of a Macklin Field Engineer.

DON'T TAKE BONDAGE — INVEST IN BONDS

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Manufacturer of Grinding Wheels

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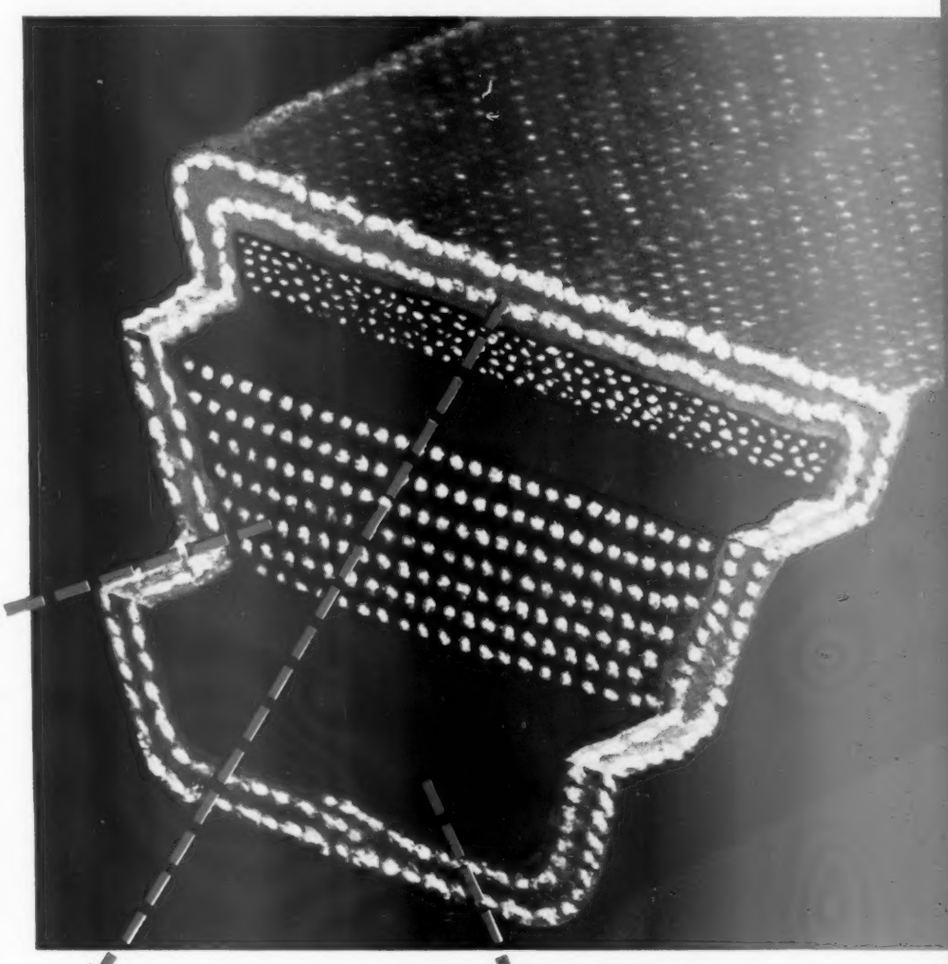
Anatomy of Maintenance

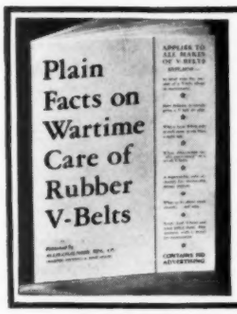
WARTIME V-BELT

You'll find this Cutaway of the new, advanced Texrope Super-7 well worth a Moment's Study... for how it's *Built* tells you a Lot about how to *Care* for V-Belts — whatever "Make" you Use! And proper Care of the rubber V-belts driving around 70% of America's production machines is a Wartime *must!*

V-Day needs every V-Belt



MUSCLE.. The 50% stronger cords and 20% *more* cords produced by the Flexon process give the new Texrope Super-7 extra muscle. To protect the pulling strength of *your* V-belts — regardless of their brand — keep them pulling *steadily*... without the slipping and grabbing that can jerk the life out of V-belts. That means keeping proper tension. Good rule-of-thumb for measuring it: "When struck with the hand, properly taut V-belts have an alive springiness."



Free!

Every engineer and executive should have a copy of this valuable new handbook in his technical library. It's packed with timely facts... applies to *all* makes of V-belts. Send for it today!

SKIN.. Texrope Super-7's tough, new Duplex-Sealed cover protects the inner belt structure against grit, grime and moisture. And what protects any V-belt's *cover* is — maintenance! So here are 3 rules for care of covers... 1. Keep grease or oil from reaching them — quickly remove it with a solvent if it does (*never* apply belt dressings to rubber V-belts!); 2. If gritty dust threatens abrasive wear, shield your V-belts; 3. Maintain proper tension to prevent slip and heating.

PAD.. Just as the bones of the human foot "ride" on the sole's pad of fat, so the pulling cords of a V-belt "ride" on a pad of rubber... which eases them around sheaves. Texrope Super-7's pad is of special, cool-running rubber which combats heat, dangerous enemy of rubber. *You* can fight heat by preventing misalignment in your drives. When present, it subjects the sides of V-belts to needless rubbing, sharply raises belt temperatures. So keep the shafts of drives parallel, sheave grooves in line.

☛ *When you do Need new V-belts, invest in the Best...Texrope Super-7!*

A 1545

ALLIS-CHALMERS

WE WORK FOR VICTORY — WE PLAN FOR PEACE

TEXROPE* SUPER-7 V-BELTS

*Trade mark registered U. S. Patent Office. Texrope Super-7 V-Belts are the result of the cooperative research and design genius of two great companies — Allis-Chalmers and B. F. Goodrich — and are sold exclusively by Allis-Chalmers. Available in all sizes.....½ h.p. to 2,000 h.p.

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☐ **1. AIR-EXPRESS**—Detailed information concerning the three-mile-a-minute service of air shipping for shippers in many lines of business is subject matter of folder complete with map and poundage table. Air Express, Division of Railway Express Agency.

☐ **2. HYDRO-ELECTRIC POWER** — This handsomely illustrated 27 page bulletin is a resume of hydraulic power in wartime. Representative industrial and municipal units are included, and the special adaptability of each type of turbine in relation to conditions of the installations, is discussed. Types of water-wheel generators are described. Allis-Chalmers Mfg. Co.

☐ **3. ABRASIVE CUTTING** — Thirty-two pages of details, photographs and tables concerning operations of abrasive cutting machines are contained in this complete up-to-the-minute book. It explains the development and application of abrasive cutting, following the machines from the dry abrasive cutting up to the modern wet abrasive cutting machine. Andrew C. Campbell Division, American Chain & Cable Co., Inc.

☐ **4. LEATHER BELTING** — An excellent 22 page booklet is arranged for ready reference and based on operating performance to enable the user to receive the benefits of lower operating costs and better machine output through leather belting. Proper selection, installation, maintenance, cleaning and pressing are thoroughly covered to insure the best performance. American Leather Belting Assn.

☐ **5. BOTTOM REFRACTORY**—Described in this four page bulletin is the ideal bottom refractory for open hearth as well as electric furnaces. It is a versatile cold-ramming magnesite refractory with great utility; and is said to save time and money for operators in original construction and labor, and materials in hearth maintenance. Basic Refractories Inc.

☐ **6. SHOCK ABSORBING WHEELS** — Wheels with this new construction can ride bumps and rough spots without lifting the load even the height of the bump, and by a spring—controlled snubbing action eliminate the bouncing action of rubber. These wheels, developed as a substitute for rubber, are described and illustrated in a four page folder. The hub carries the load off center allowing the wheel to rise without lifting the load. Casters and wheels with this construction are recommended for trucks or portable equipment. The Bassick Co.

☐ **7. ABRASIVE CLOTH GADGETS** — A myriad of operations is being performed in developing war equipment by use of little coated abrasive gadgets duly illustrated in a handy chart to guide the technical force as well as men on the finishing jobs. The numerous forms illustrated began as specialties for metal finishing and polishing operations that could not be performed conveniently by other tools. Behr-Manning.

☐ **8. ROTARY PUMPS.** Illustrations and accompanying descriptive literature in this bulletin of six pages present a comprehensive picture of mechanical design features of power and hand pumps. The "bucket design" principle used in the pumps is a true-circle rotor, revolving within a cam-shape bore casing. Blackmer Pump Co.

☐ **9. SANITARY PUMPS**—Four pages of pictures and text tell about sanitary pumps for use in food and beverage processing plants. Clamp-type "sanitary" head is easily removed for cleaning and pipe connections are not disturbed. It is fitted for all standard drives, and intake and outlet ports are opposite, thereby simplifying piping. Pumps are self-priming and capable of handling exceptionally high suction lifts. Blackmer Pump Co.

☐ **10. COLD FINISHED BAR STEELS AND SHAFTING**—Section one of this manual begins a presentation of technical data on modern steels, their expectancy and application to industrial uses. Standard steel designations, chemical compositions, physical properties, heat treatments and possible developed properties, machinability, and response to other fabricating operations comprise the type of information in this 42 page manual. Bliss & Laughlin, Inc.

☐ **11. CARBIDE TOOL FILMS**—Six educational films, non-commercial in character, describe the following processes: Cemented carbide, designing cemented carbide tools, brazing the tools, chip breakers, grinding single point carbide tools, and putting cemented carbide tools to work. They will be distributed at print cost for use in war training programs by industrial concerns and will be lent free to educational institutions through film libraries of colleges. Carboloy Company, Inc. Detroit, Mich.

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Pop aims to start the New Year right

BULLETINS
RESOLVED: THAT ANY GUY CAUGHT USING THE WRONG FILE FOR THE JOB GETS THREE SHAVES WITH A LATHE CUTTER.
THIS IS WAR!! MAKE EVERY FILE STROKE COUNT!
NO EXCUSE FOR FILE ABUSE... A FILE IN THE RACK IS WORTH TWO DOZEN ON THE SCRAP PILE!
1943
JANUARY
PEEK AT WHO'S LOOKIN' OVER POP'S SHOULDER AN' GUESS WHO'LL TAKE TH' LATHE-CUTTER CURE BEFORE TH' WEEK'S OUT...!
YOU COULDN'T MEAN FUMBLIN' OSWALD BY ANY CHANCE?!- NOT HIM!! WHY, POP WON'T NO MORE THAN BURN HIM TO TH' STAKE TH' NEXT FILE BULL HE MAKES..!
ALEXANDER

FREE REPRINTS of this and other recent "object-lesson" cartoons available for tool-crib and other shop bulletin boards. How many do you want?

Loyal American industry has but one aim—to produce to the utmost, that the war may be won as speedily as possible. Waste—in time, effort, tools and materials—must be reduced; short cuts devised; details simplified.

We're thinking specifically about filing. We know files. Been studying, designing and making them for 79 years. We've seen mass filing work on which there have been unbelievable savings in man-hours, materials and file expenditures through employee education in the elementary rules of proper *use* and *care* of files . . . and on the importance of selecting *The right file for the job.*

Besides making files capable of yielding the greatest possible number of efficient filing strokes, per file or per dollar, Nicholson has plenty of instructional literature to enable *bringing them out.*

To speed filing on specific metals or types of work, Nicholson or Black Diamond Special Purpose Files constitute a further important phase of the art of filing. There is an informative Nicholson Technical Bulletin, or capable engineering counsel, available on any special file or filing problem you may have. Ask your mill-supply house about further Nicholson filing-production helps. Or, write us direct.

FREE—*TECHNICAL BULLETINS*

on Nicholson or Black Diamond Special Purpose Files for Stainless Steel, Aluminum, Brass, Lead, Plastics, Die Castings, Foundry Castings, Die Making, Lathe Filing, Shear Tooth Filing *(smooth finishing on soft metals).* Name ones wanted.

FOR STAINLESS STEEL *(at right)*—One of numerous Nicholson Special Purpose Files.

NICHOLSON FILE CO., 42 ACORN STREET
Providence, R. I., U. S. A.
(Also Canadian Plant, Port Hope, Ont.)

NICHOLSON FILES
FOR EVERY PURPOSE

NICHOLSON U.S.A. MADE IN U. S. A.

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☐ **12. CELLULOSE PLASTICS**—Elaborate manual, in layman's language, 64 pages and cover, profusely illustrated, detailing physical properties, technical characteristics and uses of varied types of cellulose plastics in the form of sheets, rods, tubes, films and foils, molding materials, glazing materials, plasticizers, lubricants and dopes, defines these products in war and peacetime uses. Celanese Celluloid Corporation.

☐ **13. MILLING MACHINE CATALOG**—This illustrated catalog of 24 pages describes a new milling machine said to combine maximum rigidity of structure, almost effortless operation, highly efficient spindle drive, and independent and non-related power feeds for table, cross slide and vertical spindle carrier. The Cincinnati Milling & Grinding Machines, Inc.

☐ **14. PNEUMATIC TOOLS**—Fifteen forceful cartoons in a small book, 4" x 5¼", drive home fifteen important "Do's and Don'ts" in the handling and operation of pneumatic tools. The instructions are given in a manner that will make them easily understood by novice workers and, at the same time, make them effective in reforming careless veteran users. The Cleveland Pneumatic Tool Co.

☐ **15. PAPERBOARD PACKAGING**—This 34 page catalog is a pictorial record of some interesting paperboard products being manufactured for war industries. Fibre and corrugated shipping containers, folding cartons etc. are types of paperboard packages for food, ammunition, tank and airplane parts described. Container Corporation of America.

☐ **16. AUTOMATIC SHAPING**—Simplifying difficult contour shaping operation by means of an automatic machine tool control is explained and pictured in a two page bulletin. The product permits standard shapers to do high speed automatic shaping. Detroit Universal Duplicator Co.

☐ **17. ELECTRICAL HAND TOOL** — Five freely illustrated pages describe an electrical hand motor appliance and accompanying equipment. This precision tool, known as "100 tools in one" grinds, drills, carves, routs and polishes, is light weight and has high speed. Dremel Manufacturing Co.

☐ **18. PORTABLE GRINDERS**—To facilitate rapid and efficient purchase of portable precision grinders, this 36 page catalog lists more than 15 tools and carefully segregates them to insure selection of correct accessories with each tool. Illustrated with each grinder are grinding quills with specifications of range of work handled. The Dumore Co.

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☐ **19. MILLING MACHINE SLOTTER** — This device, which provides double duty facilities, since it requires but little time to change over from one head to the other, is pictured in a four page bulletin. It can be used as a vertical slotter and shaper for cutting keyways, templates, splines, internal gears and for slotting out precision blanking dies and molds, or wherever sharp corners and special shapes are machined. Experimental Tool & Die Co.

☐ **20. CYLINDER GRINDING MACHINES**—This 30 page booklet on roll and cylindrical grinders describes the advanced design, construction and operation of roll grinder with moving work table. The machine was developed to meet needs for high output of precision ground rolls with a minimum of skill on the part of the operator. Farrel-Birmingham Co., Inc.

☐ **21. QUICK FLOOR PATCH**—A ready-mixed product that enables repairs to be made quickly to ruts and holes and allows immediate use of the floor without setting or hardening time is explained and illustrated in a four page bulletin. Flexrock Co.

☐ **22. SELF - LIGHTING SOLDERING TORCH**—Outstanding features of this acetylene torch for soldering, silver soldering, light brazing, and lead burning are described in a small eight page folder. Made of solid bronze and tool steel, the torch is dormant when not in use, but when picked up the trigger is pulled and instantly it blazes away. Gas Gun Co., Inc.

☐ **23. STEAM HOSE MAINTENANCE** — Simple, easy-to-read rules for the care and maintenance of steam hose, as well as detailed instructions on proper methods of attaching couplings, and a revised catalog section on lines of steam hose, are contained in these two pages of descriptive literature. Data on inside and outside diameters, weight and number of plies also are listed. B. F. Goodrich Co.

☐ **24. SOLENOID CONTACTS**—Production of a new series of solenoid contactor units

SCRAP that smile

The scrap situation is serious and calls for drastic and determined collections to wipe the smiles from the faces of our enemies. Look first for the obsolete and obvious junk. Then look with a more searching and merciless eye for those vast quantities of border-line material — old materials and old equipment that are being kept for the remote possibility of future re-use. Consider carefully whether the possible re-use value outweighs the country's urgent need for scrap now. Don't stop with a short time "Drive" — scrap must keep moving to the steel mills in a continuous and ever increasing stream.

Reprints of this advertisement available free on request

COPPERWELD STEEL COMPANY ARISTOLOY STEELS **WARREN, OHIO**

When writing Copperweld Steel Company please mention Purchasing

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built to United States Army Air Force specifications for remote control of electrically actuated aircraft armaments, instruments and devices, is described in a four page illustrated bulletin. The three contactor units are claimed to resist acceleration and vibration over 10 times gravity. Two units may be disassembled with pliers and screwdriver, and all have metal parts plated to withstand 200-hour salty spray test. Guardian Electric Mfg. Co.

☐ **25. OIL BURNER CONTROL**—An oil burner that automatically and accurately proportions all the primary and secondary atomizing air and oil flowing through the burner, from minimum to maximum capacity, is described and photographed in this 16 page catalog. There are diagrams for automatic control hook-ups, and interior views of the burner. Single lever automatically controls the oil and air supply. Hauck Manufacturing Co.

☐ **26. ELECTRIC BRAZER AND MARKER**—Two bulletins, four pages each, describe these two products. Brass, copper, bronze, steel and dissimilar metals are easy to braze with this new electric brazer which requires no preheating, no heavy tank or bulky hose. The marker, used like a pencil, cuts right into the surface leaving lines that cannot be wiped away or worn off with ordinary usage and is ideal for marking products, production parts and tools. Ideal Commutator Dresser Co.

☐ **27. PLASTIC TUBINGS AND FITTINGS**—A thermoplastic specially made to replace strategic materials and adaptable for use under high working and bursting pressures is considered in an eight page bulletin. Photographs illustrate the plastic chemical uses and wide variety of industrial applications. Hodgman Rubber Co.

☐ **28. SHIPPING CONVEYORS**—A table on selecting conveyors for various package sizes with illustrations of some applications features this 16 page bulletin. How individual conveyor parts are designed and made, the inside story on bearings, rolls and frames, as well as various accessories such as supports, switches and stops, comprise the substance of the bulletin. Lamson Corp.

☐ **29. FLOCCULATION TANK MIXERS**—Mixers for flocculation tanks at sewage and water treatment plants are covered by a four page illustrated folder. With shaft parallel to flow, and paddle rotation across the flow, these slow mixers produce a spiral mixing action that builds up a swirling motion in the liquid. Link-Belt Co.

☐ **30. PAPER, ALLIED TRADES DIRECTORY**—The 1943 directory of the paper and allied trades with every section and list up to date is now on sale for $7.50 per copy or $7.00 cash. There is also a salesmen's pocket edition. Lockwood Trade Journal Co., Inc.

☐ **31. SOLVING HARD CLEANING PROBLEMS**—Laboratory analysis of difficult cleaning problems whether in metal finishing, cleaning locomotives and coaches, or in the aircraft, steamship, motor, electroplating or other industries, is part of industrial cleaning service described in four-page folder which declares that no cleaning jobs exists that cannot be done with utmost satisfaction from the standpoint of economical, better and faster work. Magnuson Products Corporation.

☐ **32. TRUCKS, TRACTORS, TRAILERS**—An informative and attractively illustrated new catalog deals with approved W. P. B. Limitation Order L-112 models of industrial trucks, tractors and trailers. Included is an explanation of procedure for ordering a truck under order L-112, detailed specifications, and an explanation of the application for each type of equipment. Mercury Manufacturing Co.

☐ **33. FIRE EXTINGUISHER** — Two-and-one-half gallon extinguisher designed for combating magnesium fires around lathes, milling machines, etc., is described in a four page descriptive folder. The extinguisher is so constructed that the outer steel shell is also the reservoir for the special fluid. Metal Products Engineering, Inc.

☐ **34. METALLIZING PROCESS** — New salvage applications are considered in this manual which is an amplification of engineering service program designed to assist industry on salvage, conservation of materials, and the use of substitute metals for the more critical ones. Compiled with cooperation of the Army, Navy and Ordnance departments on confidential military applications of the metallizing process. Metallizing Company of America.

☐ **35. INDUSTRIAL CREAMS AND LOTIONS**—Protection of the worker's skin against industrial dermatitis, by a complete line of medically-correct, creams and lo-

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IT'S A TREMENDOUS JOB YOU'RE DOING, MR. NELSON

Incorporated 1850

Pennsylvania Salt Manufacturing Co.
Manufacturing Chemists.
Widener Building
Philadelphia

Leonard T. Beale
President

December 19, 1942

Mr. Donald M. Nelson
Chairman, War Production Board
Washington, D. C.

Dear Mr. Nelson:

It is a tremendous job you are doing. And a remarkably successful one to date, as evidenced by the huge volume of vital war supplies that is now rolling off American production lines.

From our position as but a single unit in the vast industrial march to victory, we have some appreciation of the immense problems and responsibilities that you and the War Production Board face in coordinating national production.

We know the task has just begun. We realize the imperative need of teamwork and cooperation. In supplying essential chemicals to key war industries we sometimes feel that we are playing only a limited part in the war program -- although there is no limit on our effort.

We are gratified, however, when we receive reports from the field showing how our products have helped do a better and faster job of turning out materials for war. One such routine serviceman's report read, in part, "Pennsalt Cleaner saved this large steel fabricating plant over 5000 lbs. of zinc per week in a galvanizing operation. Production was speeded 25% by reduction of rejects."

While this is just one example, it illustrates the kind of job we like to do.

Yours for Victory,

Leonard T. Beale

PENN SALT *Chemicals*

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tions, is described in 16-page booklet. Six different types of products protect against a number of specific skin hazards. The creams do not interfere with normal action of the skin glands, are emollient, and are easily removed with soap and water. Mine Safety Appliances Company.

☐ **36. INSTRUCTION AIDS IN GRINDING**—Explanation of three kinds of instruction aids is contained in this four page bulletin: A series of four motion picture films for the novices presents fundamentals of grinding. For the experienced there is a one-week course of visual and oral instruction, and for all there are numerous instructive handbooks. Norton Co.

☐ **37. CLEANING MATERIALS**—Describes how new cleaning materials, de-scaling methods and related techniques are being successfully used to conserve manpower, and step up efficiency on 41 maintenance jobs common to almost all plants. This guide outlines on each job the material used, method followed, time saved, hazards eliminated and other advantages. Oakite Products, Inc.

☐ **38. AIR-PAINTING EQUIPMENT**—High production airbrush of low maintenance cost is described and illustrated in an eight page booklet FM9-42. The all-purpose gun, light, yet full sized and with fine adjustment, is used with pressure feed tanks which also are illustrated in the booklet. Paasche Airbrush Co.

☐ **39. OILING THE LATHE**—This second in a series of helpful lathe service bulletins emphasizes the importance of proper lathe lubrication. It outlines a regular procedure of oiling with proper lubricants at definite intervals. The 19 page bulletin will be an aid to the operator of any size engine lathe, regardless of make. South Bend Lathe Works.

☐ **40. CMP INDEX** — Everyone involved with C. M. P. regulations and procedure will have to keep facts of the plan at his fingertips. Information on how to design a visible record-keeping system, especially adaptable to C. M. P., is given in this eight page folder. It is a simple, flexible, accurate and highly efficient system providing for gradual P. R. P. to C. M. P. changeover as well as for new C. M. P. records where no records were formerly required. Visible Index Corp.

☐ **41. PRODUCTION REQUIREMENTS PLAN**—Methods of keeping one's production requirements plan in visible form by means of purchase, inventory and shipment records maintained in certain card forms is considered in detail and diagrammed in this six page bulletin. This flexibility of the record system outlined here permits immediate adaptation of revisions to comply with changing government conditions. The Visible Index Corp.

☐ **42. LOCKER RACKS**—Two pages of descriptive and illustrated matter show the all wood industrial locker which saves floor space, prevents locker room jams, is sanitary and keeps wraps in press. Vogel-Peterson Co.

☐ **43. A-C WELDING**—Welding speed is said to be increased 20% to 30% and power costs cut one third by A-C Welders (100 to 500 amps.) described in a new booklet. These A-C Welders are said to increase output because of absence of magnetic arc blow, ease of using heavy electrodes with higher currents, and ability to make good welds in all positions. Westinghouse Electric and Mfg. Co.

☐ **44. MAXIMUM MOTOR PRODUCTION**—"Calling All Horsepower" — describes programs designed to save critical war materials and to get maximum production out of every motor. It shows how motor overload capacity can be utilized to get more production from every unit of horsepower. Six wartime application recommendations are discussed. Westinghouse Electric & Mfg. Co.

☐ **45. TEMPERATURE CONTROLS** — Sixteen page bulletin lists line of measuring and control instruments; unit construction of temperature controllers is described and illustrated, as is "electronic principle" for obtaining control without contact between measuring and control functions of the instrument, and remote controllers, combustion safeguards and other instruments. Prices, and numbers of catalog sections on each unit are shown. Wheelco Instruments Co.

☐ **46. COLLET CHUCKING FIXTURE** — Eight-page brochure describes time saving and operating advantages of collet chucking fixture which has practically universal application on varied machine tools, and is available in two types—one for holding and indexing and the other for holding only. Zagar Tool Inc.

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Where planes are finished *fastest*—where tanks are rolled out *swiftest*—where war materials are being built *quickest* . . . you'll find SKILSAW TOOLS at work. They've earned their place way out in front on America's production lines, because SKILSAW TOOLS work faster, handle easier, get more jobs done in less time.

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We are proud to say that this research has enabled us to fulfill in a completely satisfactory manner the exacting requirements of both the United States Army and the United States Navy.

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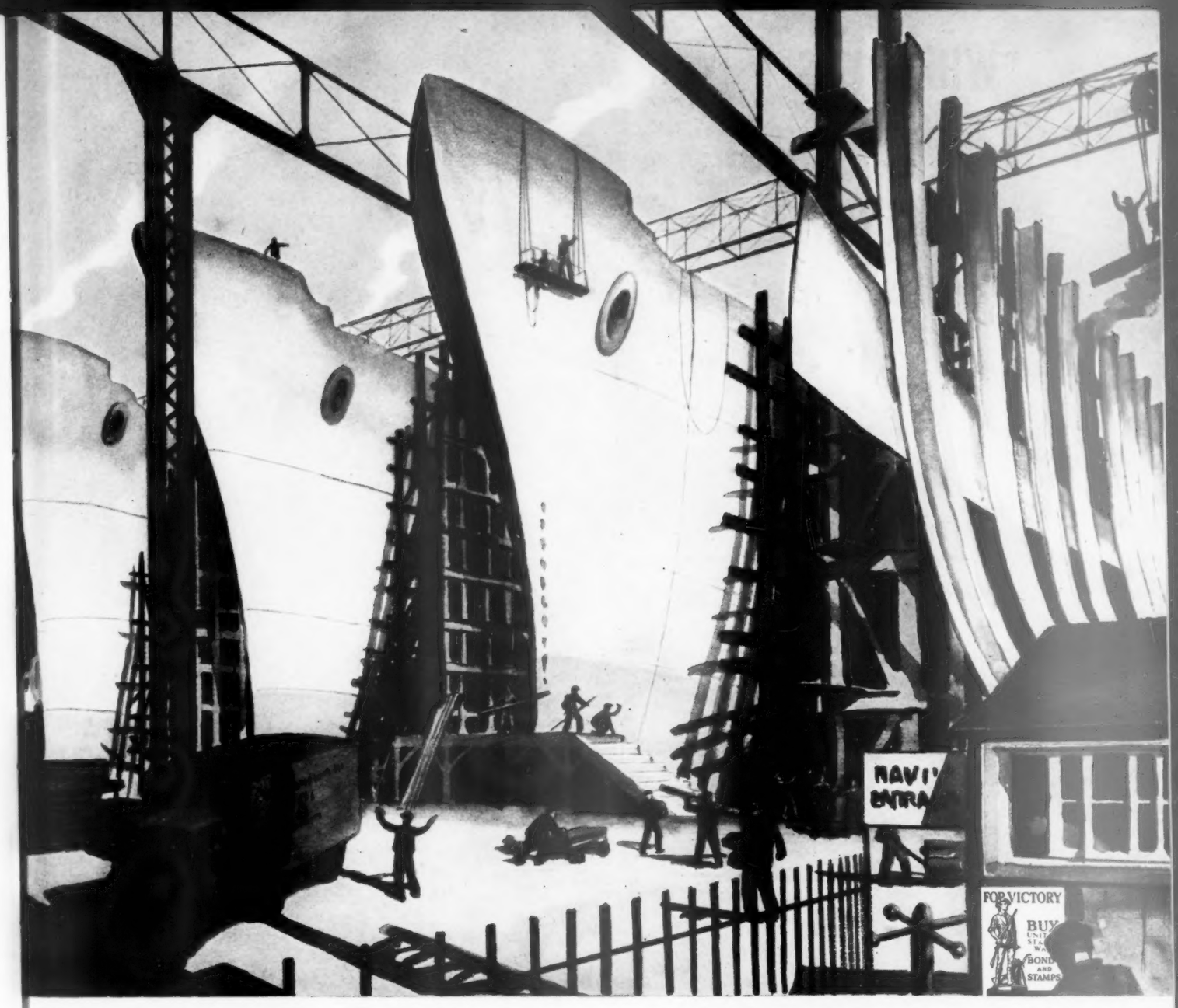

UNLEASH THE DOG SHORES FASTER!

Ships and more ships, sliding down the ways, are inexorably speeding the time when we shall beat the enemy on his home front. Fighting ships, transports, auxiliary craft of every type must be turned out and in numbers never before contemplated.

But by no means is all the work being done in the shipyards. In every ship, from fighting tops to propeller shafts, from bow to rudder stacks, hundreds of tough stress-resistant forged parts are essential. And these parts must be delivered on time if our shipbuilding program is to be maintained.

From the Kropp Forge Company in the heart of industrial America, forged parts are moving in steady streams to the shipbuilding centers inland and on our coasts. Drop, hammer and upset forgings, delivered on schedule by the world's largest job forging shop, are hastening the completion of ships of all classes—*unleashing the dog shores faster.*

We are 100% concentrated on the war effort. Our capacity has been multiplied many times to serve the needs of ships, planes, ordnance, tanks and machine tools. We are bending every effort to make material deliveries ahead of time.

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ARMY E NAVY

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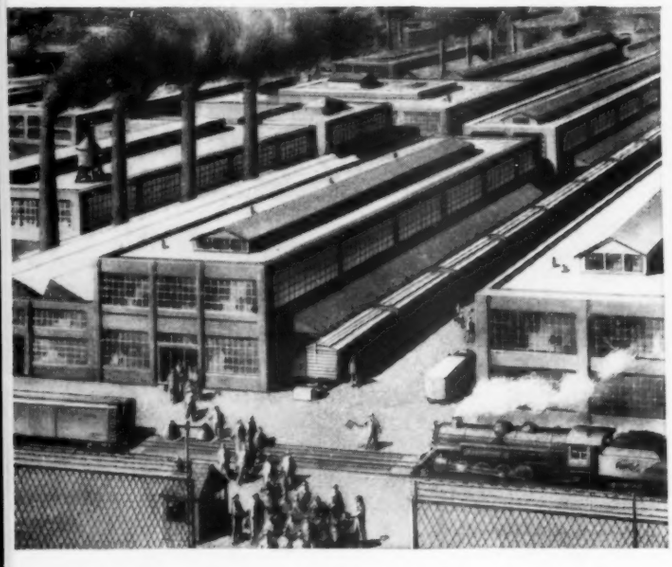
WHEN IT'S "FULL SPEED AHEAD" FLOW CONTROL GETS GOING—FAST

WHEN the order "full speed ahead" goes down to the engine room, the answer surges to the whirling propellers through precise control of the flow of steam. That means valves—most often Crane valves.

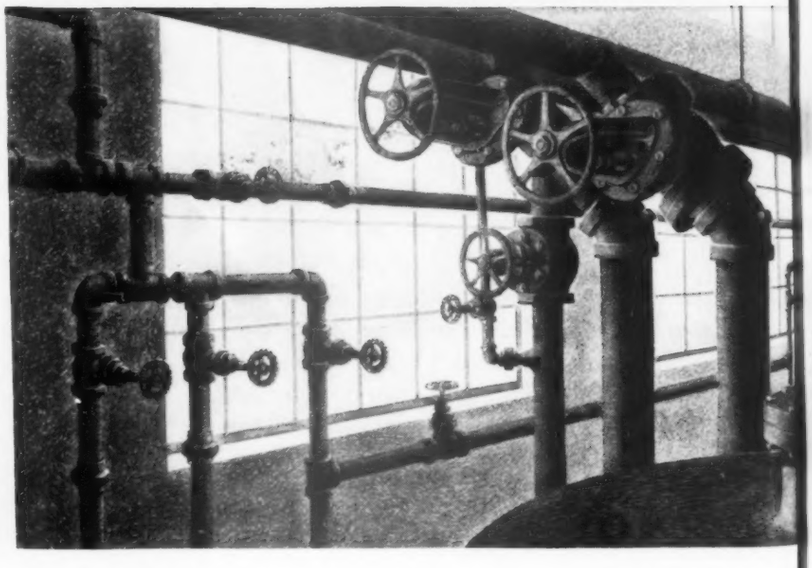
For serving the Navy is nothing new for Crane. From the days when the ironclads became the final answer to sea power, Crane valves have been doing their part in assuring our Navy the world's best fighting ships.

At Crane, flow control means more than the final function of a valve. It means control of engineering, of research, of distribution—of all the techniques and the facilities for meeting industry's great demands—not only in war but in peace as well. It means the ability to get valves—the right kind—*where* they are needed—*when* they are needed. This is Crane flow control service—important for American industry—and for America's war effort today.

Crane Co., 836 So. Michigan Avenue, Chicago, Ill.



It takes a big supplier to meet the demands for flow control in industry. That's why the leaders have long turned to Crane, largest manufacturer of valves in America. For at Crane they could find not only the diversity of valves they needed, but also the understanding of big industries' requirements in product, service and technical assistance to assure adequate flow control.



Follow any pipe line and, at frequent intervals, you'll encounter a valve. Valves are essential to the control of the flow for which the pipe line exists. And because flow through pipe is so basic in American industry and American life, the *availability* of valves is of prime importance to industry. To provide that availability, Crane has established controlled distribution with more than 500 branches and wholesalers through which Crane valves and piping products may flow to their ultimate users.

CRANE *FLOW* CONTROL

THROUGH CRANE VALVES

ARE YOU HOARDING any 3-Month-Old Stock?

SELL TO GRAINGER OR TELL WPB

Make your surplus stock available to the war effort immediately and effectively. WPB is cooperating with manufacturers and others who are voluntarily liquidating their surplus. W. W. Grainger Inc. has purchased and redistributed thousands of dollars of frozen surplus located on their own initiative and in cooperation with WPB. When you sell to Grainger, your surplus stock is speedily redistributed by a nation-wide merchandising organization constantly working with war plants

MOTORS IN STOCK

DEFENSE PLANTS and priority buyers are saving precious time on motor deliveries by ordering from motor stock lists in the W. W. Grainger Motor Book. Immediate delivery can be made on many sizes, types and brands of motors. Write for latest copy.

LIQUIDATE SURPLUS STOCK and You Liquidate the 4th Foe

3-month old inventory in your stockroom is a 4th FOE fighting our armed forces. You can speed the war effort by liquidating all your surplus stock so that it can be redistributed to producers of war materials.

Over a billion dollars worth of vital surplus mechanical and electrical items is being withheld from war production.

Scrap, rubber and aluminum salvage has played a big part in speeding up war production while liquidation of other surplus inventories has lagged shamefully.

CRITICALLY NEEDED are Such Electrical and Mechanical Items, As—

Electric Motors	Switches	Cord-Sets	Gear Reducers	Fan Parts
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GRAINGER WILL BUY Your Surplus and Get It Into the War Effort

We will pay highest prices permitted by OPA for your surplus stock inventory of items listed above. Take advantage of this opportunity—turn frozen, dormant stocks into cash—convert idle space into productive space—help reduce serious war shortages.

SEND US YOUR SURPLUS INVENTORY NOW

We invite all firms to send us their surplus inventory list. It will be quickly reviewed and quoted on. Our representative will call if you prefer.

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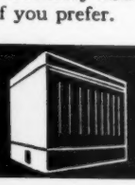

24 WAREHOUSES COAST-TO-COAST

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HOWARD foremost in Magnesium Castings

The new Howard magnesium foundry has a capacity of over 500,000 pounds of castings per month. Its output during the next few months will exceed the entire volume of magnesium produced in the United States in 1938. This plant supplements the two Howard foundries where aluminum and copper-base castings are produced. This combination of facilities affords the largest production of non-ferrous castings in America.

Lightest of structural metals—two-thirds the specific gravity of aluminum—magnesium possesses the highest ratio of strength of all metals, is the easiest to machine and has high resistance to impact.

Howard magnesium castings are proving their worth in machinery and tools as well as fighting equipment; planes, guns, tanks, ships and military vehicles. One application on a four-motor bomber saves the weight of two men, as compared with the part formerly used.

The war work at the Howard foundries is revealing many civilian uses for cast magnesium parts. Some of these may effect improvements in your products. A booklet, "Non-ferrous Castings and Their Uses," awaits your request.

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ARMY E NAVY

HOWARD

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CASTINGS

Easy to Answer!

▸▸ *Question:* What is the safe, quick, economical way to handle a load that is

HEAVY... like a turbine cover?
HIGHLY FINISHED... like a paper mill roll?
IRREGULAR... like a casting?
FRAGILE... like a crate of plate glass?

See Answer Below

1

2

1 Handling big steel mill roll without harming smooth finish.
2 Turbine cover is kept level and exactly fitted in place.
3 Sling grips glass crate by edges; no hooks, no damage.

3

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You'll use this practical wire rope information often. 96 handy pages of facts, tables, illustrations. Send for your free copy *today!*

The answer to handling *any* "problem" load more easily is a Yellow Strand Wire Rope Plaited Safety Sling.* Flexible, light-weight and kink-proof, this patented type will hoist a locomotive or a barrel with equal security. Each sling has the *stamina* of Yellow Strand Wire Rope. Braided by our expert splicers, its exceptional *pliability* enables it to grip a load softly, snugly and without damage to a delicate surface.

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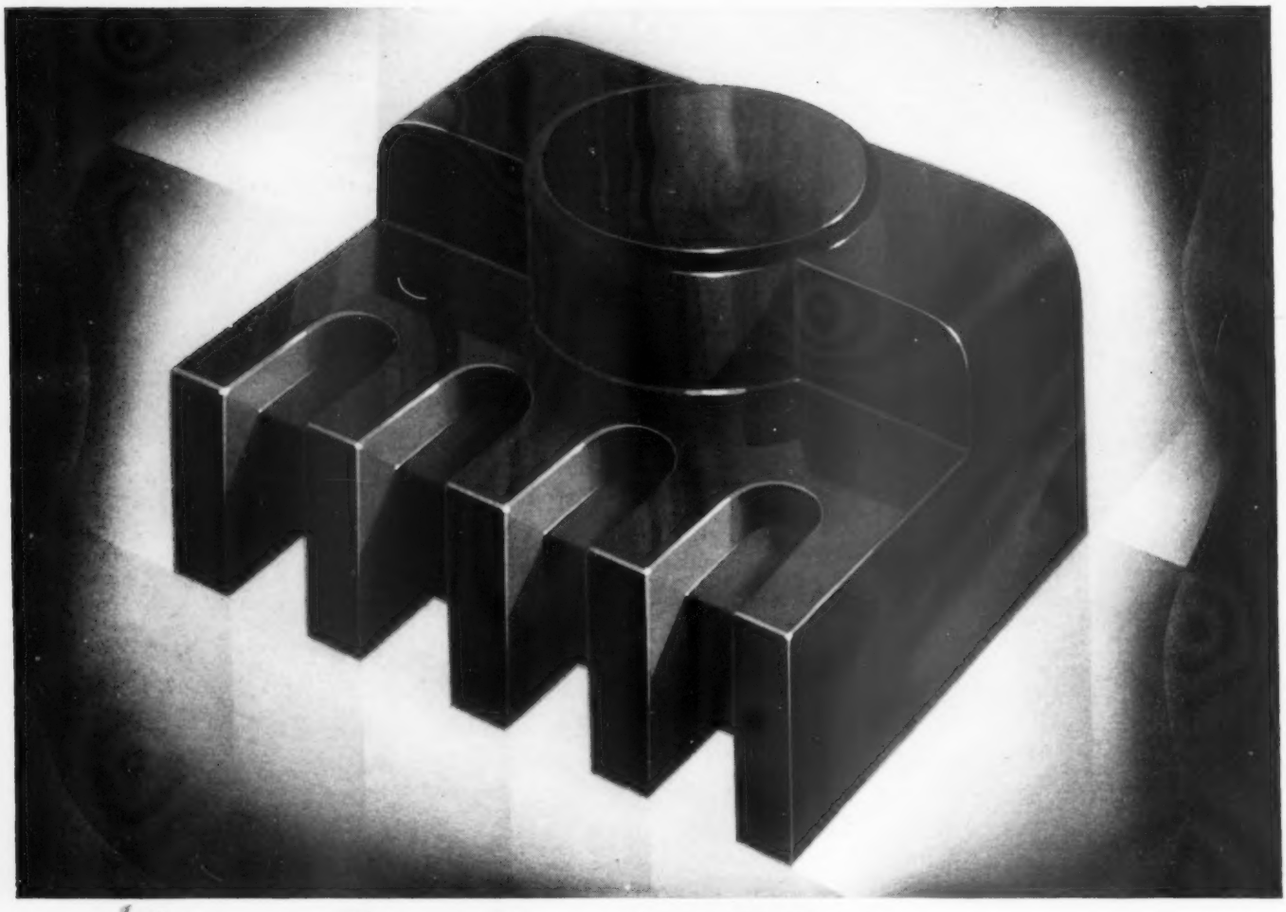

How they simplified the "Life of Inspector Riley"

ONCE he was known as *rejector* Riley and that meant trouble—trouble for him—shut-down on the assembly line—and slow-down of the company's war effort.

But that was before Richardson Plasticians and the contractor's engineers started working together—before the part was made of Molded INSUROK.

In hundreds of ways, Richardson Plasticians have helped scores of manufacturers win acceptance and enthusiastic approval for their war products and parts. And INSUROK Precision Plastics have been the means of successfully meeting many a tough specification—of speeding up production that might otherwise be delayed.

If you have a problem which molded or laminated plastics might solve—or a plastics fabrication problem on which years of experience might be beneficial, write us.

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INSUROK *and the experience of Richardson Plasticians are helping war products producers by:*

1. Increasing output per machine-hour.
2. Shortening time from blueprint to production.
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5. Providing greater latitude for designers.
6. Doing things that "can't be done."
7. Aiding in improved machine and product performance.

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FIRTHITE

LEADS THE WAY

TO INCREASED PRODUCTION

Metal Removed with Tungsten Carbide

Metal Removed with Tungsten-Tantalum Carbide

Metal Removed with Tungsten-Tantalum-Titanium Carbide

Metal Removed with Tungsten-Titanium Carbide

1929 — **Tungsten Carbide** Tips, brazed to plain carbon-steel shanks, gave greatly increased production in machining cast iron, bronze, and brass—not steel. So Firthite then developed:

1932 — **Tungsten-Tantalum Carbide** for faster steel cutting. Certain difficulties of manufacture and use led Firthite next to develop:

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WHAT HAPPENED TO THE 4999th?

A TINY FLAW, a jammed gun, a boy's life's blood reddens the earth, out there in that leaden hail. Had someone blundered when the parts for that gun were made?

Five thousand parts make up that gun of his. Five thousand pieces of metal—yet only a single one need fail to cost his life so bravely given. Your neighbor's son or yours. Think now, what tremendous liability to tiny bits of metal!

What can *we* give? Only the patient work that moulds and toughens fit metal for his fighting. Only the craftsmanship that forms each part with absolute precision. Only our sweat to save his life, our toil to help him toward Victory.

This we can do. Metal is sacred—save it! This we can pledge. Each part, however small, shall move in the terrible motion of battle—true, sound and as nearly perfect as human skill and mechanical ingenuity can make it.

Such resolve controls the quality of each Empire bolt and nut—each bit of metal on which a soldier's destiny may ride. To manufacturing processes which insure maximum strength and greatest accuracy, we add the personal energy and care so essential to Victory.

Free posters for your plant's bulletin boards, reproducing this ad with an appropriate slogan in place of our signature, are available upon request. Write Russell, Burdsall & Ward Bolt and Nut Company, Port Chester, N. Y.

RB&W *Making strong the things that make America strong*

RUSSELL, BURDSALL & WARD BOLT AND NUT COMPANY

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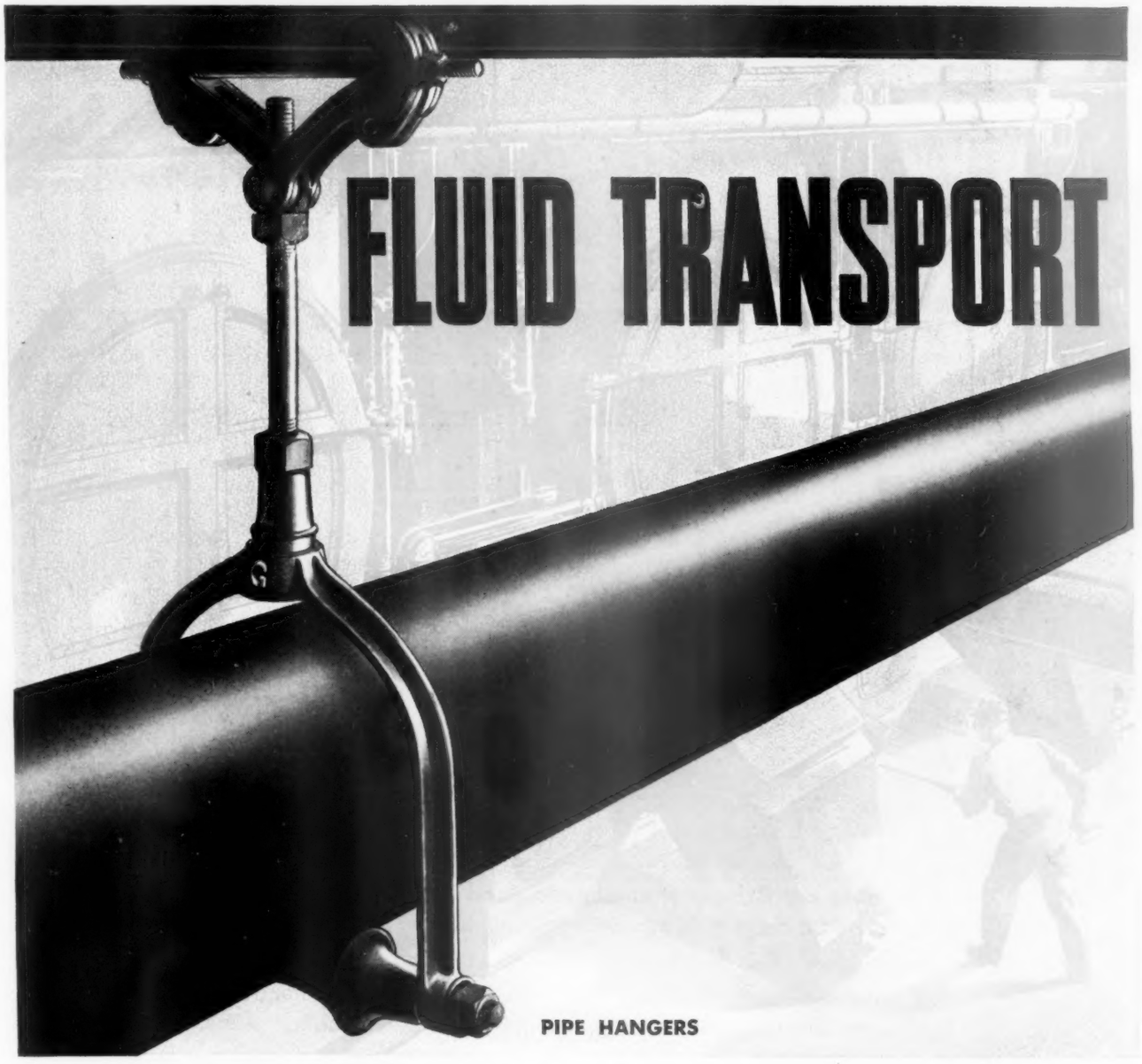

"THE 17TH FLOOR IS CALLING FOR MORE HEAT". To distribute comfort in the form of steam or hot water to hundreds or thousands of radiators calls for experienced piping engineering to compensate for such factors as weight, pressures, exposures, expansion and contraction.

The supplying of heat through a maze of "branches" to every nook and corner of a building is a job for Grinnell FLUID TRANSPORT. As fabricators and manufacturers Grinnell supplies the connecting links which convert a pile of pipe into a complete heat distribution system.

For new war construction, or maintenance and repair of existing piping, call Grinnell Company, Inc., Executive offices, Providence, R. I. Plants and offices throughout the United States and Canada.

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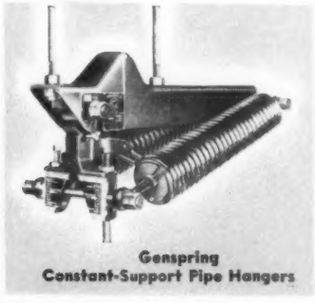
WHENEVER **PIPING** IS INVOLVED

Automatic Sprinkler Systems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To increase our fighting strength, sea, land and air, factories must produce more parts with present equipment.

Your grinders: Can they turn out a few more parts per hour, per day?

Yes, your choice of a grinding wheel might increase the number of fighting units—perhaps sink an additional sub or down another plane.

Your highest production grinding wheel may be one of just ordinary structure and grain size

—or it may be one of the open porous type

—or experience might suggest one with the very opposite characteristics.

Turn to experience—a Norton engineer, with thousands of combinations to select from, may succeed in raising your grinder production.

★ ★ ★ NORTON ABRASIVES

NORTON COMPANY, WORCESTER, MASS.
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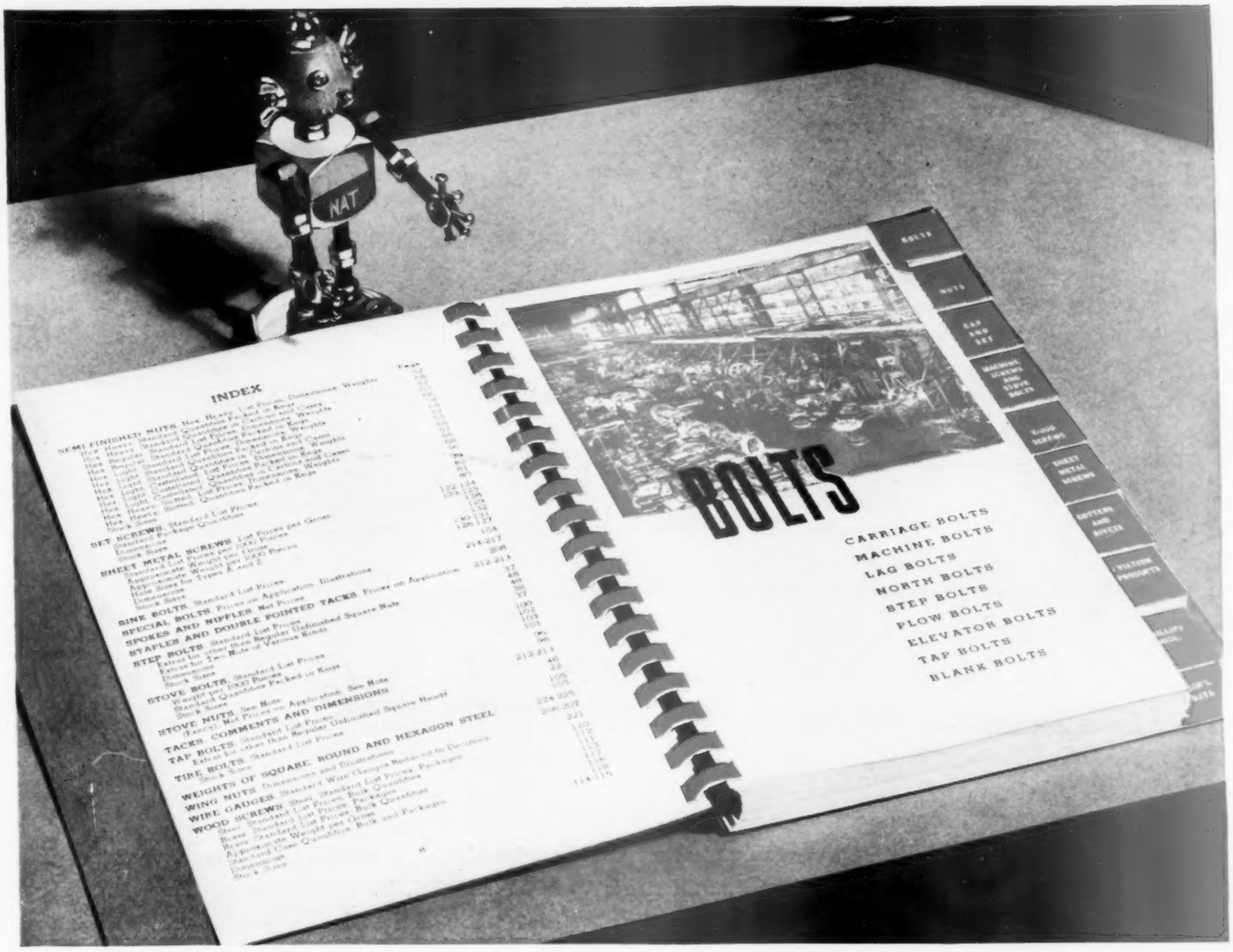

AN ENCYCLOPEDIA OF FASTENING DEVICES

Here is the new catalog of headed and threaded products manufactured by The National Screw and Manufacturing Company. Brought out late in 1942, it has already proved immensely popular with those who have seen it. This catalog of 228 pages covers the most comprehensive line of fastenings made by any one manufacturer. Thus it is the most complete catalog on bolts, nuts, rivets, screws and kindred articles ever issued—a veritable encyclopedia of fasteners.

A request for a copy sent us on your letterhead will receive prompt attention.

THE NATIONAL SCREW & MFG. CO.
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HEADED AND THREADED
PRODUCTS

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FIND METAL-CUTTING HORSEPOWER *Quickly* WITH THE

1 JUST SET THE MOTORULE SCALE

2 READ OFF NEEDED CUTTING POWER* HERE

This newly developed load calculator makes it easy to figure the motor horsepower required for metal-cutting operations when the recommendations of the machine builder are unavailable. Its advantages? You can avoid *undermotoring* and save yourself production delays; you can avoid *overmotoring* and save the nation vitally needed steel, copper, and aluminum.

The G-E MOTORULE is accurate for a wide variety of cutting operations on lathes, drills, milling machines, and planers. It works on a wide range of materials, because you start from a convenient table of constants for the particular type of metal being cut.

The results of many years of work by metal-cutting authorities were used by G-E engineers as a basis for the MOTORULE. The formulas were checked against actual load tests, and leading machine-tool builders were consulted.

The MOTORULE will help you in making sure of adequate motor capacity on machines being put to new war work, and in selecting motors for machines formerly driven from line shafting. And, wherever machines are used for a variety of jobs, the MOTORULE provides a quick way to determine where machine production can be increased. To get your MOTORULE, just get in touch with your G-E Motor Representative. Or, if you wish, mail coupon direct to General Electric, Schenectady, N. Y.

* Naturally, the MOTORULE is not intended to supplant the instructions of machine builders as to the power requirements of their machines. Rather, it is offered to fill the gap when these recommendations are unavailable, or when new war work has altered the load conditions.

General Electric Co., Sec. H750-144
Schenectady, N. Y.

☐ Please send me a G-E MOTORULE, with full instructions and leaflet giving the principles on which it is based.

☐ Please send your MOTOR FITNESS MANUAL, GED-1017.

Name..... Title.....

Company.....

Street.....

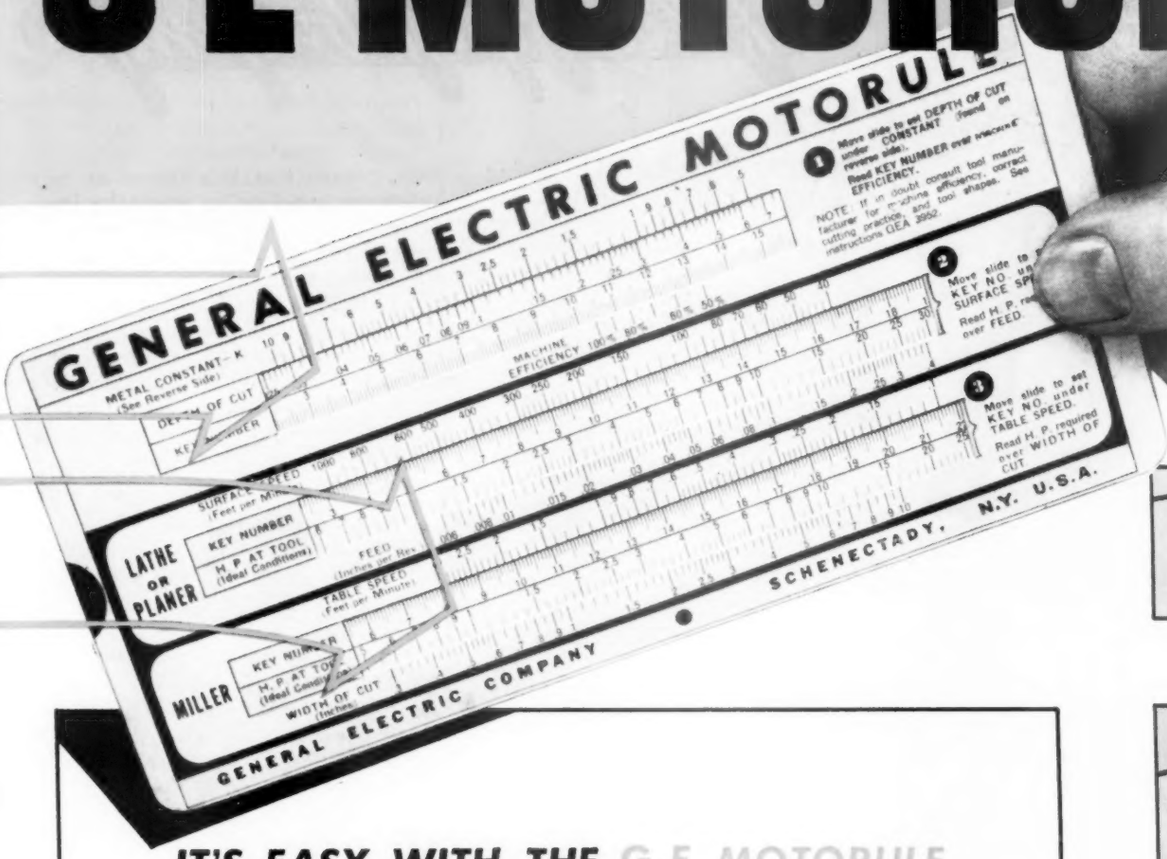
City..... State.....

8030

MOTOR FITNESS MANUAL—tells what to do to get the most out of motors, old or new; gives practical suggestions for selection, application, maintenance. Check coupon for a copy of this up-to-the-minute booklet.

The Navy "E", for Excellence, has been awarded to 92,780 General Electric employees in six plants manufacturing naval equipment.

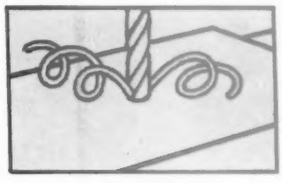
G-E MOTORULE!


GENERAL ELECTRIC MOTORULE
METAL CONSTANT—K
(See Reverse Side)
DEPTH OF CUT
KEY NUMBER
LATHE OR PLANER
KEY NUMBER
H.P. AT TOOL (Ideal Conditions)
SURFACE SPEED (Feet per Minute)
FEED (Inches per Rev.)
MILLER
KEY NUMBER
H.P. AT TOOL (Ideal Conditions)
TABLE SPEED (Feet per Minute)
WIDTH OF CUT (Inches)
MACHINE EFFICIENCY
1 Move slide to set DEPTH OF CUT under CONSTANT (found on reverse side). Read KEY NUMBER over MACHINE EFFICIENCY.
NOTE: If in doubt, consult tool manufacturer for machine efficiency, correct cutting practice, and tool shapes. See instructions GEA 3952.
2 Move slide to set KEY NO. under SURFACE SPEED. Read H.P. required over FEED.
3 Move slide to set KEY NO. under TABLE SPEED. Read H.P. required over WIDTH OF CUT.
GENERAL ELECTRIC COMPANY
SCHENECTADY, N.Y. U.S.A.

IT'S EASY WITH THE G-E MOTORULE

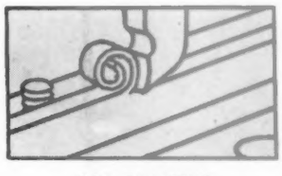
First you refer to a convenient table of constants, printed on each rule, choosing the constant for the particular type of metal to be cut. Then, by setting adjacent scales to the known cutting speed, feed, and cut, you arrive at the cutting power required on the basis of ideal tool and machine conditions. Complete instructions are furnished with each MOTORULE.

FOR LATHES



FOR DRILLS

FOR MILLING MACHINES

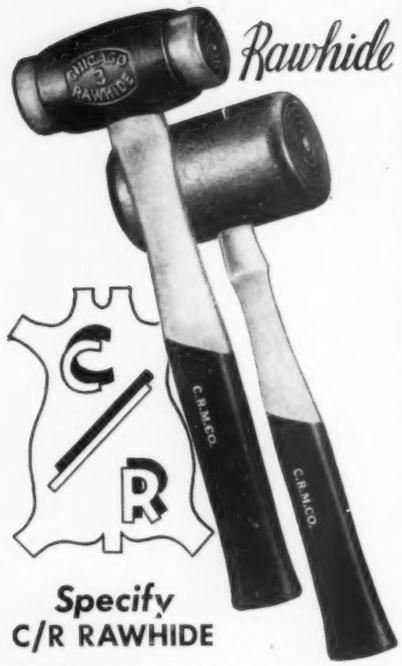


FOR PLANERS

SPECIFY TRI-CLAD MOTORS

STANDARD G-E MOTORS ARE GENERALLY AVAILABLE WITHOUT DELAY FOR WAR JOBS.

GENERAL ELECTRIC



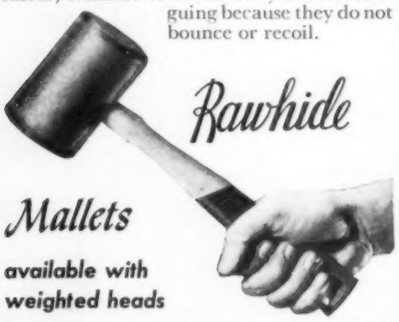
Specify C/R RAWHIDE

C/R Hammers and Mallets go along in the tool kits of most war planes because their coiled Rawhide faces take the damaging crash out of forceful blows—get work done without battering, denting or marring. They come in sizes and weights for all assembly, servicing and dismantling operations—are standard tools with die setters and machinery builders and are universally used for "pounding-in" motor winding because they will not injure the most delicate insulation.

Hammers

take Replaceable Insert Faces

They strike accurately, for they are not only accurately balanced with shaped handles but hold their true striking face—never chip, smear, crumble or erase. They are less fatiguing because they do not bounce or recoil.



Mallets

available with weighted heads

While they cost more than many types of mallets they far outlast them and are not only the best but cheapest "soft" hammers in the long run. They are sold by leading supply houses.

Write for Catalog Sheets

CHICAGO Rawhide MFG. CO.

ELSTON AVE.. ★ CHICAGO. ILLINOIS

F.O.B. filosofy of buying

PERHAPS no Purchasing Agent in history has had a more earnest "rooting section" among his purchasing contemporaries than Harry Lingle, loaned last August by the Humble Pipe Line Company to handle the purchases for War Emergency Pipelines, Inc., in putting through the gigantic artery for carrying Mid-Continent oil direct to the Illinois refineries. As that job neared completion, Harry's outfit received another grant of sixty million dollars, and will push the line through to the eastern seaboard. The total project involves 1,388 miles of 24-inch pipe line, with twenty-five pumping stations between Longview, Texas, and the eastern refineries. Delivery of crude at the rate of 300,000 barrels per day is promised by June 1. Hats off to Harry for a big job that is being well done.

• •

These Houston buyers are doing right well in public life. Otis Massey, another wheelhorse of the Houston Association, must now be addressed as "Hizzoner". His new address is the Mayor's office in the Texas metropolis.

• •

THE tempo of American industry for 1942—fantastic in the forecasts and even more amazing in accomplishment—goes into the record books as an all-time high. But not for long, as the quotas for 1943 set new and higher goals and we're ready to believe anything possible now. The report to the nation on the anniversary of Pearl Harbor, detailing the progress of war production, proves that this tempo is no unknown quantity, as might be inferred from the slogan "X is for EXPEDITE." Sign of the times is the wall poster being distributed by the H. M. Harper Company of Chicago, reproduced herewith. The original is printed in bright red, and the card measures 11 x 28 inches. It might be described as eight speeds forward and no reverse in war production.

• •

Speaking of signs, there's something rather pathetic in the admonition posted in one company's lobby: *"Our buyers are very busy. Please be courteous to them."*

• •

THE Industrial Salvage Division of the War Production Board requests that salvage activities be no longer considered as a "campaign", but as a "program". The distinction between the two terms is not a quibble on words, but a significant change in thought and approach. The campaign was necessary in order to make industry and the nation scrap-conscious, and a long and hard campaign it was, too. Now that industry has had a taste of what intelligently directed salvage activities can accomplish in the way of conserving materials and putting them to useful work, as well as turning idle and obsolete equipment into cash, there is little doubt that this will indeed be a continuing activity or program as indicated by the new terminology. This is but one of the permanent benefits we may expect from the necessities of a war economy.

'X' means EXPEDITE

Hurry–Rush–Don't Delay–Step On It
It's Hot–Remember Pearl Harbor, etc.
Do It Yesterday–It Was Due Then

ONE company that is really going overboard in the scrap drive is the Pittsburgh Steel Company. Purchasing Agent J. H. Phillips, who has the dual responsibility of salvage operations and procurement of enough material to feed the open hearth furnaces, discloses that the Monongahela River is to be dredged at Monessen and Allenport to recover metal which has spilled from the company's barges during the past twenty years during loading operations. The Monessen *Independent* likens the project to that of the prospectors of '49, searching the streams for gold. It is estimated that somewhere between 800 and 1,000 tons will be recovered, including steel billets, blooms, ingot chippings, metal equipment, and other scrap.

• •

AMID the clamor for better business methods in government, it is only fair to note that industry can also learn a few tricks from government. The National Canners' Association, in conference at Chicago last mnoth, approved the creation of a manpower division within the Association and launched plans for setting up a national auxiliary labor supply pool for both farm and factory work during 1943, organized on a community, state, and national basis. It's really a part of their procurement job, for canners must have foods to can, and some of the 1942 crops were never harvested because of the manpower shortage.

• •

Just prior to the meeting, an amendment to Conservation Order M-81 was issued by WPB, and the familiar term "tin can," which always was a misnomer, moved a little closer to oblivion as tinplate coating specifications were further reduced for several products. Also rendered obsolete is the classic wheeze about "We eat what we can and what we can't we tin."

• •

IN this day of priority clinics and commodity clinics, it is refreshing to learn of the "Rumor Clinic" which was featured at a recent meeting of the Montreal Association. The speaker, Paul Vaillancourt, is chairman of a newly formed organization known as the Canadian Column, which is devoted to tracing, exposing, and quashing the rumors which are rampant in these war days. It is likewise refreshing to learn about a column with a name instead of a number.

Designed for Saving Steel Time Money

IF you will chart the service record of Preformed "HERCULES" *(Red-Strand)* Wire Rope — as so many have done — you, too, will have definite proof of the savings that its use provides.

You will find a saving in steel because of its longer life; by the same token you also save time, as replacements are less frequent. And the sum of these two savings is greater economy.

The consistent top-flight performance of Preformed "HERCULES" *(Red-Strand)* Wire Rope is not a matter of chance. Like all wire rope bearing this well-known name, it is made of acid open-hearth steel wire . . . selected by rigid tests to make sure that it meets our exacting requirements. It is then carefully manufactured according to sound fundamental principles.

There's a definite reason why wire rope users who watch their costs, specify "HERCULES" *(Red-Strand)* on their requisitions.

The more hours of work you can get out of every pound of wire rope you use, the more steel you save for other vital war purposes. Regardless of the kind or make of wire rope you now have, it will not be able to give you the full service of which it is actually capable unless it is handled correctly and operated under proper working conditions. For further information on proper use and care of wire rope, feel free to consult our Engineering Department.

BUY WAR BONDS FOR VICTORY IN '43

A. LESCHEN & SONS ROPE CO.
WIRE ROPE MAKERS — ESTABLISHED 1857
5909 KENNERLY AVENUE — ST. LOUIS, MISSOURI, U. S. A.

NEW YORK . . . 90 West Street
CHICAGO . . 810 W. Washington Blvd.
DENVER . . . 1554 Wazee Street
SAN FRANCISCO . . 520 Fourth Street
PORTLAND . . 914 N. W. 14th Avenue
SEATTLE . . 3410 First Avenue South

When writing A. Leschen & Sons please mention Purchasing

Help Assure Victory

BUY WAR BONDS

CONSERVE RUBBER

ELIMINATE UNNECESSARY TRAVEL

USE THE TELEPHONE ONLY WHEN IMPORTANT

SALVAGE ALL SCRAP AND WASTE MATERIAL

FOR VICTORY TIMKEN TAPERED ROLLER BEARINGS

TAKE GOOD CARE OF YOUR EQUIPMENT

All Timken Bearing production now goes into fighting machines. However, the Timken Bearings in your motor vehicles or industrial machines will see you through the emergency—and beyond it—if you make sure they are lubricated and inspected regularly.

"All there is in BEARINGS"

THE TIMKEN ROLLER BEARING COMPANY, CANTON, OHIO

FIGHTING TOOLS NOT FIGHTING TALK!

Ship worn-out High Speed Tools back to the steel mills – this high grade steel can do another war job.

If you want high production and accuracy from machine operators, give them high-grade cutting tools. Fighting tools – not fighting talk – produce results!

MORSE THERE IS A DIFFERENCE TWIST DRILL AND MACHINE COMPANY
NEW BEDFORD, MASS., U. S. A.

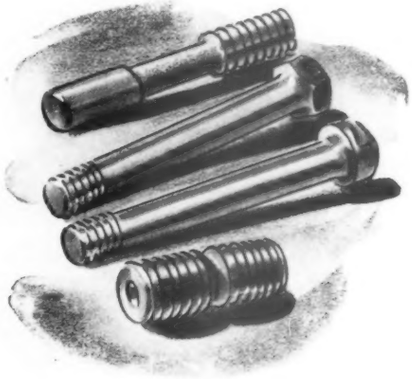
NEW YORK STORE: 130 LAFAYETTE ST. - - - - CHICAGO STORE: 570 WEST RANDOLPH ST.

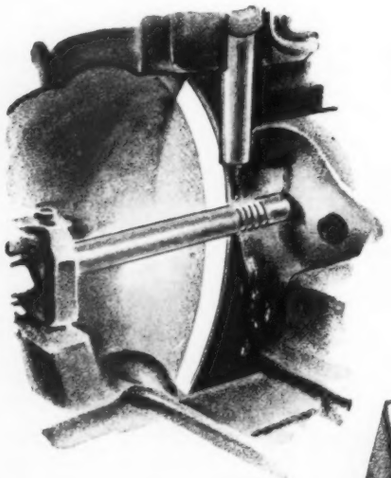
When writing Morse Twist Drill and Machine Company please mention Purchasing

He flies a plane held together with threads!

At 400 m.p.h. a fighter pilot's life literally hangs by a thread. For the bolts and studs which help hold his engine and plane together are only as strong as their threads. Fortunately those threads can be counted on to hold. A special grinding process makes them far safer and stronger today than they would have been a few years ago. In this process, Carborundum-made grinding wheels play an important role.

The method of grinding produces threads of almost unbelievable accuracy, free from microscopic checks and cracks which might cause failure under stress. This greater accuracy justifies a smaller safety factor, reducing weight of dead metal. And in most cases, production is speeded and costs reduced.





Thread grinding is typical of the many ways in which products and processes developed by Carborundum are serving America by helping industry do a better, faster job at lower cost. The Carborundum Company, Niagara Falls, New York.

CARBORUNDUM
Reg. U.S. BRAND PAT. OFF.
ABRASIVE PRODUCTS

Carborundum is a registered trade-mark of and indicates manufacture by The Carborundum Company.

When writing The Carborundum Company please mention Purchasing

Correct Lubrication...

If wire ropes are to give their best service—yes, even longer-wearing **HAZARD LAY-SET PREFORMED**—they must be lubricated regularly—and correctly. Not only will proper lubrication protect the many wires from corrosion and excessive wear, but will permit the internal wires which move one against another when the rope passes over a sheave or winds on a drum, to slide more freely and with less friction. For some short-lived services, factory lubrication is sufficient. For others, additional lubricant must be added in the field, and unless this is done with sufficient frequency, your wire rope is doomed to fail before its proper time. And this is no time to waste steel.

HAZARD LAY-SET PREFORMED WIRE ROPE ordinarily gives so much better, easier-handling, longer service than ordinary non-preformed rope that occasionally operators take its exceptional qualities for granted and forget the oil can. Don't do it. Lubricate your **LAY-SET** correctly, and you will get even *longer* service—even *greater* dollar value. All Hazard ropes identified by the Green Strand are made of Improved Plow Steel.

HAZARD WIRE ROPE DIVISION Wilkes-Barre, Pa., Atlanta, Chicago, Denver, Fort Worth, Los Angeles, New York, Philadelphia, Pittsburgh, San Francisco, Tacoma
AMERICAN CHAIN & CABLE COMPANY, INC. Bridgeport • Connecticut

● IMPORTANT SUGGESTIONS

Clean wire rope thoroughly before lubricating. Use kerosene and wire brush.

Passing the rope through high-pressure jetted steam has proved a very effective means of cleaning, especially larger diameters.

Wipe off excess lubricant.

Frequent lubrication with light-bodied lubricant is better than infrequent treatment with heavier lubricants.

Lubrication of any wire rope is sufficiently important to warrant calling in one of the industrial lubrication men employed by oil companies or a Hazard man. These men can tell you which lubricant will handle your problems best.

HAZARD LAY-SET *Preformed* WIRE ROPE

A BETTERMENT . . .

Not a Substitute

Has there been a substitution for the "Good Old Days" Saturday night lavation?

No, the modern shower is a **BETTERMENT!**

Romantic as we may be, few, if any of us, would want to go back to the old tub bath in the stove-heated kitchen (often the only heated room in the house).

Neither will many of you designers and engineers want to go back to commonly used materials . . . now practically impossible to get . . . once you replace these materials, not with substitutes, but with materials designed to do a better job for you.

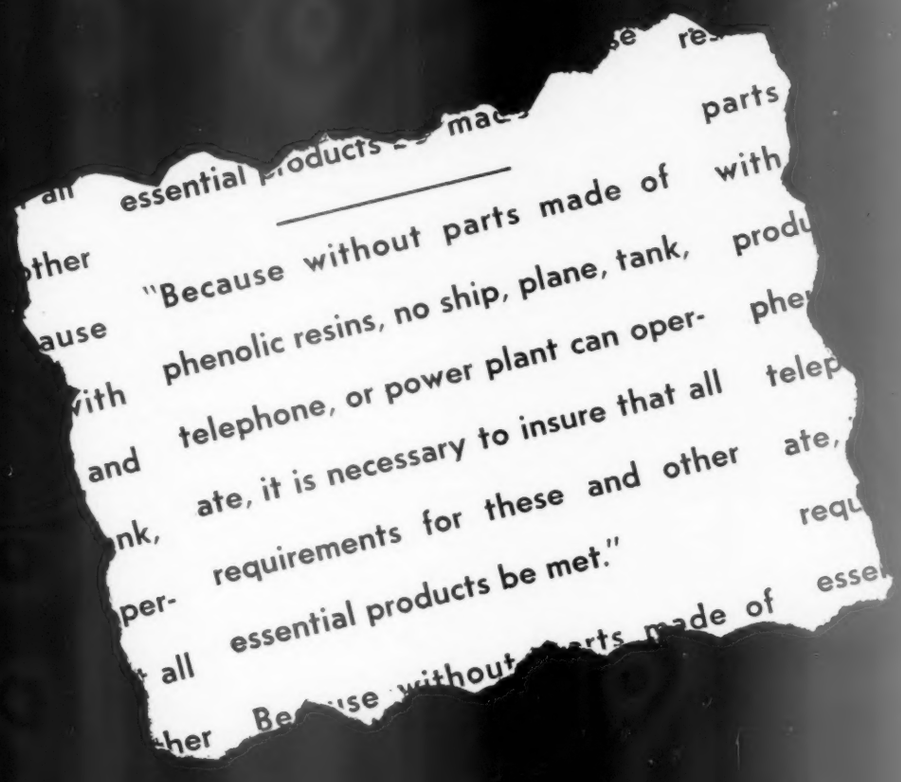
Getting the right NON-metallic material need not involve tedious delays for research and experiment. The CONTINENTAL-DIAMOND Laboratory has been doing experimental work of this nature for more than 27 years. Its files contain records of hundreds of difficult material problems solved. C-D is not limited to working with one or two NON-metallics, but manufactures FIVE distinctly different materials. One of these may be the answer to your "What Material?" problem.

Avoid substitute materials . . . so you won't have to go back to the kitchen-tub bath. . . . Write us today about your problems. . . . Send for Booklet GF-7.

Continental-Diamond FIBRE COMPANY

Established 1895 . . Manufacturers of Laminated Plastics since 1911 — NEWARK • DELAWARE

"No Ship, Plane, Tank, Telephone, Or Power Plant Can Operate....."


"Because without parts made of
phenolic resins, no ship, plane, tank,
telephone, or power plant can oper-
ate, it is necessary to insure that all
requirements for these and other
essential products be met."

That single sentence from an industry report on WPB's new order M-246 tells the story of plastics today, for in hundreds of new ways plastics are providing better weapons of war and improved tools for industrial production. The story of plastics tomorrow sketches even a wider horizon, where plastics will enter new fields and make products that are now only blueprints and imagination.

For complete information about the development, designing, engineering and manufacturing of plastics parts write Section A-1, One Plastics Avenue, Pittsfield, Mass.

PLASTICS DEPARTMENT

GENERAL ELECTRIC

PD-1

Put Your Screw Driver Army on the DOUBLE QUICK

CUT DRIVING TIME IN HALF!

In today's battle of production, probably more workers are armed with screw drivers than with any other single tool.

Think how many workers in YOUR plant are driving screws . . . and how much time and labor would be saved if you could help them to *drive screws twice as fast!* Chances are you CAN! Hundreds of plants have done just that, by switching to Phillips recessed head Screws.

The scientific centering of driving force in the Phillips Recess eliminates all the handicaps to speed: the fumbling, wobbly starts . . . skidding drivers . . . re-driving of slant-driven screws . . . removal of broken-head screws . . . reclaiming of marred parts. Fast, faultless driving becomes automatic, even for "green hands." Power driving becomes practical for most jobs.

They cost less to use! Compare the cost of *driving* Phillips and slotted head screws. You'll find that the price of screws is a minor item in your total fastening expense . . . that it actually costs less to have the many advantages of the Phillips Recess.

KEY TO FASTENING SPEED AND ECONOMY

The Phillips Recessed Head was scientifically engineered to afford:

Fast Starting – Driver point automatically centers in the recess . . . fits snugly. Screw and driver "become one unit." Fumbling, wobbly starts are eliminated.

Faster Driving – Spiral and power driving are made practical. Driver won't slip out of recess to injure workers or spoil material. (Average time saving is 50%.)

Easier Driving – Turning power is fully utilized by automatic centering of driver in screw head. Workers maintain speed without tiring.

Better Fastenings – Screws are set-up uniformly tight, without burring or breaking heads. A stronger, neater job results.

PHILLIPS *Recessed Head* SCREWS

WOOD SCREWS • MACHINE SCREWS • SELF-TAPPING SCREWS • STOVE BOLTS

20 SOURCES

American Screw Co., Providence, R. I.
The Bristol Co., Waterbury, Conn.
Central Screw Co., Chicago, Ill.
Chandler Products Corp., Cleveland, Ohio
Continental Screw Co., New Bedford, Mass.
The Corbin Screw Corp., New Britain, Conn.
The H. M. Harper Co., Chicago, Ill.
International Screw Co., Detroit, Mich.
The Lamson & Sessions Co., Cleveland, Ohio
The National Screw & Mfg. Co., Cleveland, Ohio
New England Screw Co., Keene, N. H.
The Charles Parker Co., Meriden, Conn.
Parker-Kalon Corp., New York, N. Y.
Pawtucket Screw Co., Pawtucket, R. I.
Pheoll Manufacturing Co., Chicago, Ill.
Russell Burdsall & Ward Bolt & Nut Co., Port Chester, N. Y.
Scovill Manufacturing Co., Waterville, Conn.
Shakeproof Inc., Chicago, Ill.
The Southington Hardware Mfg. Co., Southington, Conn.
Whitney Screw Corp., Nashua, N. H.

LUBRIPLATE
SPEEDS
WAR PRODUCTION
EVERYWHERE
MACHINE PARTS ARE
HARD TO GET
You can help make the machinery you now operate last much longer without trouble, delay and expense of repairs and replacements, by using Lubriplate lubricants.

Reports from industry everywhere are telling how Lubriplate lubricants are helping to prevent shut downs and repairs. Some of these stories are almost beyond belief.

Everyone engaged in war production owes it to his Government . . . owes it to himself . . . to see what Lubriplate lubricants will do to increase his production. Lubriplate is different. It is not to be compared with ordinary oils and greases. Lubriplate arrests progressive wear. It protects machine parts against rust and corrosion. It maintains a wear-resisting protective film on bearing surfaces. There are Lubriplate lubricants to meet all operating requirements, high and low temperatures, and in the presence of water and steam. Even under certain chemical conditions Lubriplate is performing in a manner that would be impossible with most conventional lubricants. Lubriplate outlasts ordinary lubricants many times, therefore it is extremely economical.

In these war days when production is vital and machine replacement parts are hard, or, impossible to get, Lubriplate lubricants will materially help keep machines running efficiently and at reduced power consumption. Write today for copy of "The Lubriplate Film" containing much valuable information.

LUBRIPLATE DIVISION
FISKE BROTHERS REFINING COMPANY
NEWARK, N. J. **SINCE 1870** TOLEDO, O.
WRITE FOR THE NAME OF THE DEALER NEAR YOU

When writing Fiske Brothers Refining Company please mention Purchasing

ONLY AN ELECTRICAL WHOLESALER COULD THUS SPEED WAR PRODUCTION

WESCO aid a "lifesaver" to tire production

Kept Plant Up To Building Schedule; Prevented Shutdown and Product Loss

An Eastern chemical plant produces a critical substance which is a vital part of the Army's famous combat tires. Started without a priority by Government order, this plant, during its erection, was supplied for a year with all electrical requirements by the local Wesco House. Intricate planning and adroit use of non-priority substitutes were required.

Wesco's "know-how" enabled the chemical plant to tie in with the main power plant and begin partial operation 3 months earlier than expected. The customer wrote—"This tie-in material was a lifesaver and greatly helped us continue our construction work." On another occasion Wesco co operation avoided a major production shutdown.

When the difficult non-priority period was over the customer wrote—"We have expressed our appreciation by telephone several times but wish to confirm this in writing. We thank you for your splendid cooperation." The Wesco service that merits such a letter is now devoted to winning the war. In days of peace that service will be again at the command of industry and business.

WESCO SPEEDS PRODUCTION

* War plant manufacturing basic ingredient of TNT got needed equipment from Wesco in 2 days. Manufacturers promised delivery in 8 to 15 weeks.
* Airfield was saved 81 days' delay on delivery of 68 electrical items. Fastest complete delivery by manufacturers was 12 weeks. Wesco required only 3 days.

WESCO SERVES BUSINESS

* By assembling all parts of an order in one shipment.
* By furnishing informative and technical data.
* By knowing local and national codes and rulings.

Westinghouse Electric Supply Co.

150 VARICK STREET • • • NEW YORK, N.Y.

A NATIONAL DISTRIBUTING ORGANIZATION WITH 80 BRANCHES

When writing Westinghouse Electric Supply Co. please mention Purchasing

PURCHASING PREVIEWS

From the Washington office of

PURCHASING

National Press Building
Washington, D. C.

January 2, 1943

For Purchasing Executives:

DESPITE PRESSURE FROM CONGRESSIONAL SOURCES the contracting function as held by the armed services will continue to be exercised by the military. Reason is that the War Production Board is not prepared to do the procurement job, even if the armed services were willing to give it up.

At the outset of the Office of Production Management, the Purchasing Division constituted a major function of the production office. Between purchasing and priorities there was little else of importance. The Labor Division held a large spotlight, but there was no manpower shortage. The situation then was reversed. One of the problems was how to convert without disturbing labor more than absolutely necessary.

The Purchasing Division of OPM constituted an important agency, and in it were a number of men qualified to do a purchasing job. A quick tracer of where these men are now will show many of them wearing uniforms. They have built up a purchasing organization within the framework of the armed services. These men have had industrial experience, and experience in purchasing for the Government under pressure of war conditions. Their services are no longer available to the War Production Board.

Where early in the defense effort the military was forced to seek advice and guidance from the OPM Purchasing Division, the War Production Board is now in the position of seeking to maintain its control over industry. The military services are industry's best customer, and there is a natural tendency to pay attention to the requirements of the buyer.

However, Congress had indicated it will not permit controls over either the civilian economy or over labor to pass into the hands of the military.

That is the significance of the extensive powers granted to Paul V. McNutt, as Administrator of the War Manpower Commission. It also answers the question of why sweeping powers were given to WPB Vice Chairman Charles E. Wilson to schedule production.

Wilson will have a check on the open end features of contracts let by the military services. His job will be to cut back production schedules of bits, pieces and parts to fit into the assembly schedules set by the armed services in their requirements for delivery of the finished items.

As for labor, War Manpower Commission Administrator McNutt will have a job to do between now and the middle of 1943. The latter date will mark the height of withdrawals of men for the armed services—the date when the number of men in the Army and Navy will be well along to its peak. In addition, the middle of 1943 will see practically all the new war production facilities in operation. The pinch in labor will be severe by the summer of 1943.

If McNutt fails at providing adequate controls on a voluntary basis, there will develop enormous pressure for a National Service Act, and compulsory registration for women labor. However, even under

such pressure there is little likelihood that controls would pass to the military services.

****

AIRCRAFT PRODUCTION HAS BEEN GIVEN THE GREEN LIGHT. That does not mean that all manufacturers holding contracts for items going into aircraft will be permitted to produce at full capacity. It does mean, however, that every effort will be made to meet the schedule of aircraft production during 1943 set by President Roosevelt, and that schedule will tax the capacity of the industry, even with the new facilities which will come into production in 1943. However, in any program as vast as the aircraft program, there are bound to be dislocations.

The green light will mean that of all production programs, the aircraft program will represent peak output, while manufacturers of other war material will be subject to adjustment, depending upon the requirements for prosecution of the war.

****

DEVELOPMENTS ON THE WAR FRONTS have a direct relationship to materials supply. North and West African campaign has provided access to materials from that area. Few strategic materials required by us come from North Africa. However, a stabilization of the African situation will make available battle scrap to supplement supplies available to the steel industry.

Some oils and fibers will become available, but the major products of the African area—wine, grain and iron ore—will present a disposal problem.

****

CONTROLLED MATERIALS PLAN is presenting a major problem of administration. Majority of manufacturers are not prepared for a vertical allocations plan. The general principle of Bills of Materials will still apply to most products as an integral part of the plan, but the WPB industry divisions will be charged with the job of developing Bills of Materials for standard parts and equipment.

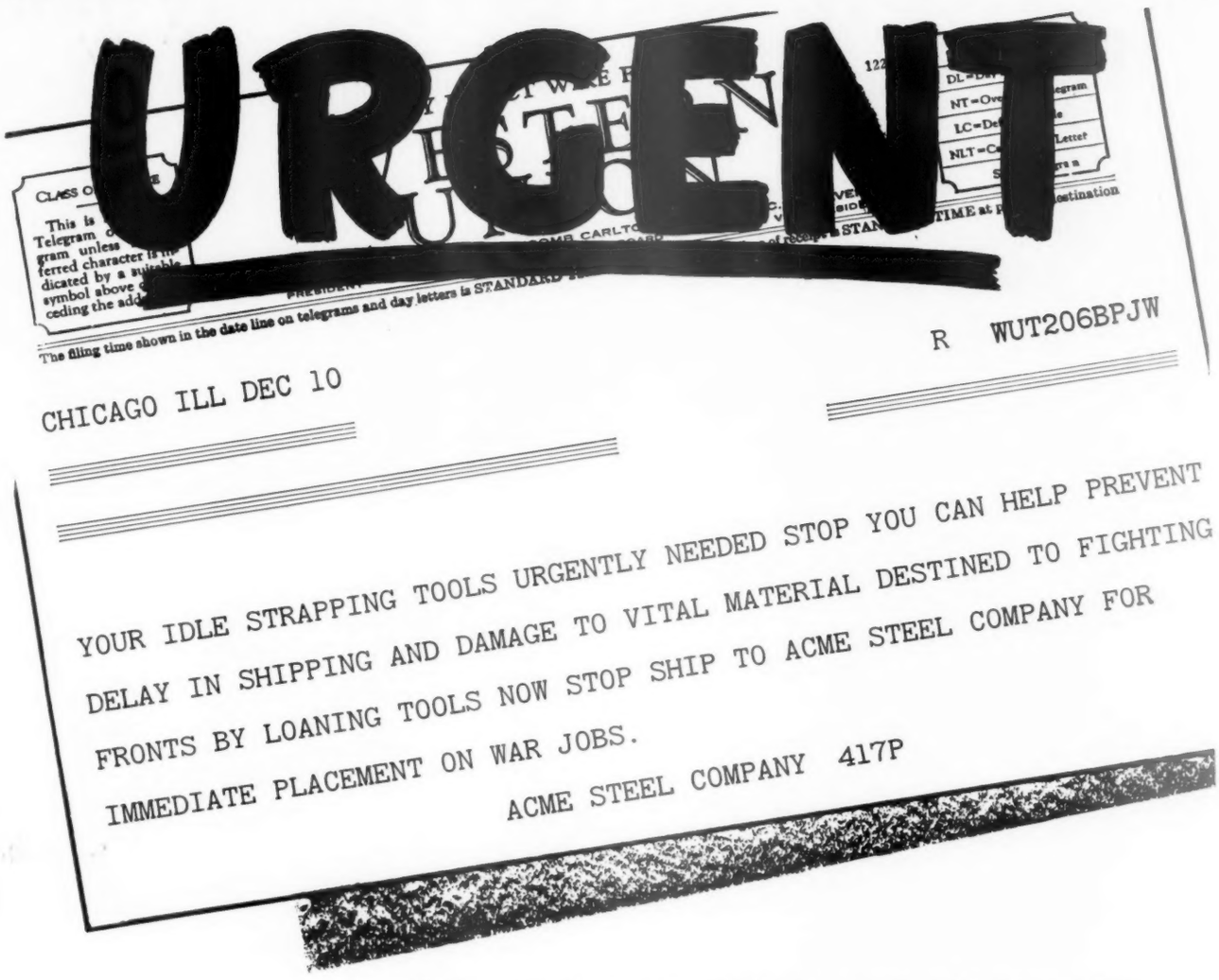
Reason for change is that industry's reaction against paper work has reached formidable proportions, and has found sympathetic reaction from important Congressional figures. Result will be de-emphasis on reports. Paper work will still be considerable, but some of the duplication of information will be eliminated.

The Class B products under CMP will be allocated materials on a horizontal basis, and as more items are placed on a horizontal allocations system, the plan tends to revert in principle to the Production Requirements Plan. Facts are that CMP represents an evolution in controls, rather than a revolution.

****

OPA PLANS TO EMPHASIZE RETAIL SELLERS' COMPLIANCE during the next several months. Official view is that most serious problem at this time is to keep retail prices in line. Controls over raw material prices are considered stable, with manufacturers' prices fairly well curbed.

Policy will be to force retailers to comply with terms of the General Maximum Price Regulation, and a concentrated enforcement drive has been planned for that purpose. OPA is making a grand-stand play to halt increases in the cost of living.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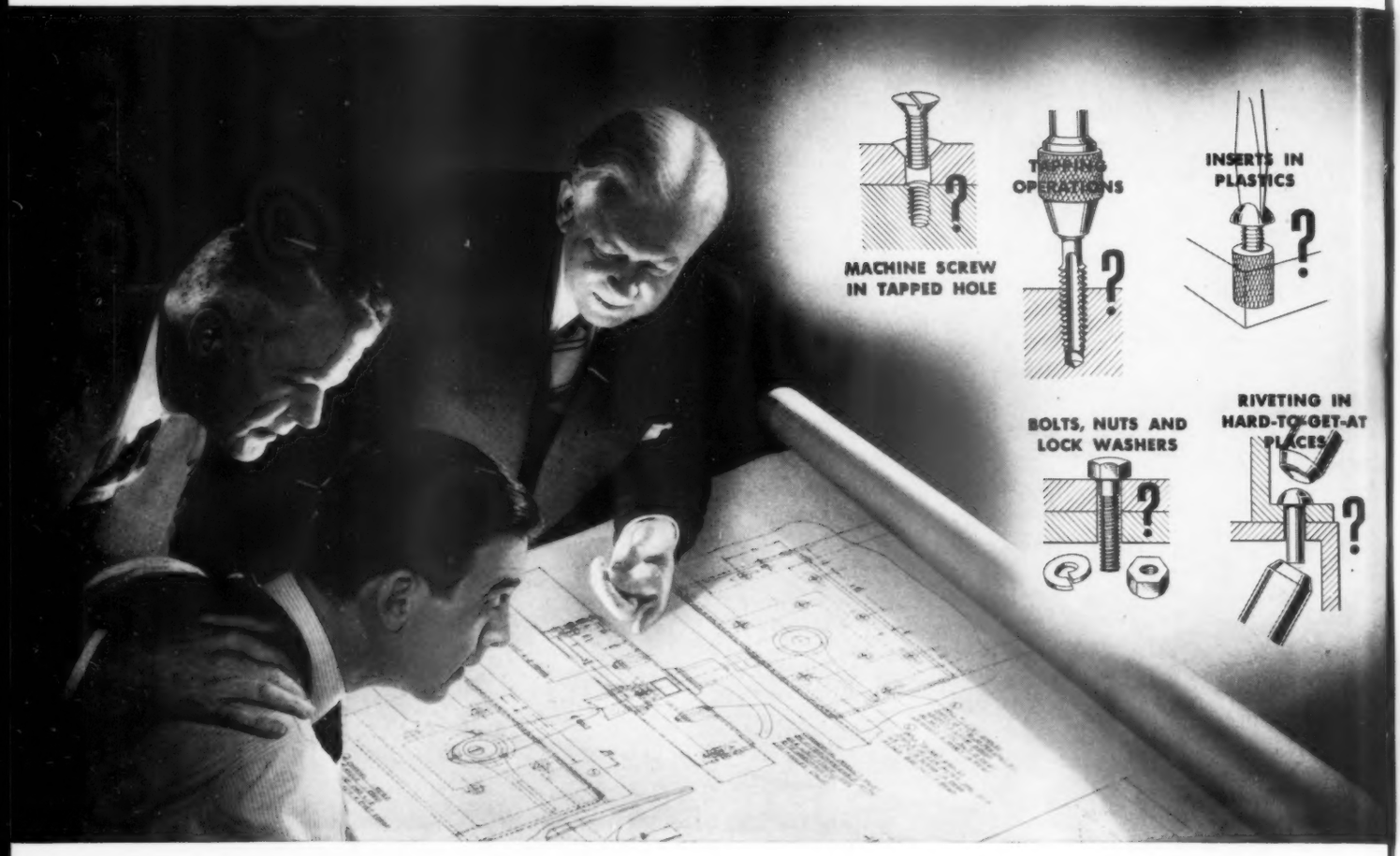
Question every fastening job...



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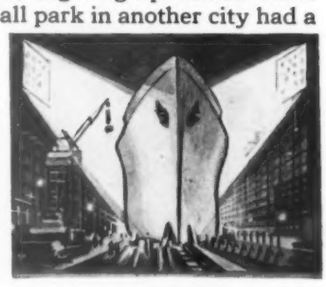

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PURCHASING

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Last year over 180 *million* man-*days* of productive time were lost through industrial accidents—many of them needless. Think how many tanks, ships, guns, planes those 180,000,000 man-days of work would have made! . . . Yes, dad—take care of yourself. Your soldier-son needs your factory production to win.

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GET READY FOR SCHEDULING

AT THE beginning of each year, the editors of PURCHASING try to indicate where the special emphasis will be placed in procurement work during the months ahead. For 1942 the word was "Conservation." The results of that program in our national economy—in procurement, in manufacture, and in salvage operations—have returned to useful service untold tonnages of metals and other scarce materials that would otherwise have been wasted or permitted to lie idle. The job is far from finished, but we are well on the way to a new philosophy of materials, a viewpoint and technique that will be of continuing and permanent benefit to industry in the better utilization of our resources and the elimination of needless waste.

The word for 1943 is "Scheduling." Like conservation, scheduling is nothing new. It has been developed to a high degree in a number of the assembly-line industries, notably in automotive manufacture, which is one of the models for the new plan of governmental control over materials flow. But in the vast majority of industrial plants, even where production is carefully scheduled, there has been relatively little precise scheduling of purchases of materials and supplies—only a general estimate of requirements, based upon judgment and market factors rather than on accurate forecasts, and with a highly flexible inventory, often too large for the good of the company or the good of the nation, to take up the slack.

Purchasing men have had a foretaste of scheduling in the Production Requirements Plan. They now face the more strict regulations of the Controlled Materials Plan, and far-sighted Purchasing Agents are even now adjusting their records and procedures to tie in with the bills of materials, the time factors of scheduling, and sound materials accounting, which are basic in that plan. We shall have much to say on these subjects in the months to come.

Just as in the case of conservation, the new emphasis is dictated by an immediate need, but the benefits to be derived as scheduling becomes an accepted part of business and purchasing practice are continuing and permanent.

To the purchasing man it means that procurement is becoming more of a science, that it must be more closely coordinated with production and planning, and that still higher standards of qualifications and performance will be required of men in the purchasing offices. Get ready now for scheduling.

Stuart F. Heinritz

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Navy Inspectors were skeptical. Could Ryerson heat-treat and assure uniform physicals—also furnish pull tests for each bar? Well, no; because the piece left after the bars were cut to the needed length, would be too short to make a standard 6″ test sample. A delay of five weeks loomed ahead. . . .

Then Ryerson metallurgists found a way: Inquiry revealed that the shafts were to be machined down at each end for a distance of 7″. So, why not cut a piece from the side of each bar, *before machining*—enough for all tests yet leaving sufficient stock for machining to size? The idea worked perfectly.

The data charts always furnished with Ryerson Certified Steels provided the exact analysis of each bar and assured proper heat-treatment. A few minutes hacksaw work yielded the necessary test samples . . . and all fourteen bars passed the rigid Navy Inspection with flying colors.

Ryerson ingenuity has helped many manufacturers in solving production problems—has also cut ultimate delivery time from months to days. Ryerson engineers and metallurgists, backed by a century of service to the nation, are ready to work with you in accordance with WPB plan in making the most of all available steel.

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PAPER PARADE

The Inside Story of the Controlled Materials Plan

By Myron Zobel

Co-Author of Contract Production Control

PART I

ALREADY—only a few short weeks after the unveiling of the Controlled Materials Plan—cries of anguish are being heard in Washington, a city which one might have imagined was fully innoculated against anything in the way of plans that could ever be produced.

The suffering is visible not only on the faces of Prime and Secondary Consumers who have descended on Washington in droves, begging piteously of the War Production Board and of their Claimant Agencies to be told the meaning of it all. The grief is also visible on the distraught faces of the would-be teachers of the Plan. Even those who are being taught to teach the teachers complain unhappily of what seem to them the unnecessary confusion and complexities of CMP.

Those mystic letters—CMP—are heard on every lip in the nation's Capital—in its night clubs and in its washrooms, in its homes and in its offices. Soon they will re-echo in the nation.

Already Washington wits have begun to rib those three initials—CMP.

"Have you heard the new one?" asks the Major.

"You mean," the Captain replies, "*C*ripes, *M*ore *P*aperwork?"

"No," says the Major, "*C*onfusion *M*ade *P*ermanent!"

The feeling grows that more preliminary research should have preceded the nation-wide application of the Plan. New complications come up every day which could have been thought through ahead of time. Even the teachers of the Plan, boning up in advance for their next day's classes, are beginning to worry over their homework.

Mr. Julian Armstrong and the writer feel a deep personal concern about these developments. For, to a certain degree, they share the responsibility for all this. This responsibility arose through their co-authorship of the Contract Production Control experiment.

Contract Production Control was fathered by them with the blessings of the War Production Board and the Armed Services. It was the first attempt in the United States to apply vertical control of materials and CPC—as it was called—also embodied many of the other principles now embraced in the Controlled Materials Plan.

The CPC experiment covered altogether a period of nearly half a year. Many of the best minds in Washington shared in its development and the records of this experiment fill four fat folders. They contain detailed reports covering contacts with and reactions of nearly three hundred manufacturers—both large and small—who took part in this study of material flow.

It is unfortunate that the pressures under which CMP was put together seem to have excluded even a cursory sifting of this mass of research. For, in the opinion of the writer, some of the facts brought out by

the experiment bear so directly on what CMP is now preparing to do that it would seem vital that they be given further consideration.

This report—addressed to American Industry—is issued with the hope that there is still time for practical men to apply some of these lessons to the betterment of the Plan. For, the writer feels that the success of the Controlled Materials Plan lies now in the lap of Industry. Most of the answers learned in the CPC experiment were learned at the bench, at the lathe, in the factory—and not in Washington. It is there and not in Washington where the real plan, the American plan, must be written and made to work.

The writer feels that this is not the time to hold back facts and information. Patriotic duty requires each of us to support the administration to the full in time of war. It does not require us to condone its ineptitudes.

The CMP plan too must have the support of all of us. It is a necessary step forward in the control of critical materials. It can straighten out many snarls. It can cut many Gordon knots, but it can also tie some new ones. Surely, it will not be harmed by discussion and analysis. Perhaps some of its rough corners can be smoothed away. . . some of its paperwork eliminated . . . some of its details simplified.

For that reason the writer has attempted, in the following pages, to outline the inside story of how the Controlled Materials Plan came into being and how, in his opinion, we may now make the best of it.

All of the opinions expressed must be taken by the reader with a grain of salt. For they are, after all, only one man's opinion. The writer speaks for himself alone and with no constraint and no endorsement from any other source, individual, corporate, governmental or military.

By eliminating the dry, legal phraseology of the text book and attempting to sugarcoat the bitter pill of pedagogy, the writer hopes that he may help his many friends in industry—those resourceful and patriotic American producers "who get things done in spite of Hell and High Planning"—to know a little better what CMP is all about.

I. THE PLAN IS BORN

IT WAS one of Washington's really sweltering days in mid-July of 1942. Outside, people were dying of heat prostration and even in that air-conditioned room on the "brass hat" top floor of the Social Security Building the heated conversation overcame the frozen air and the fourteen men around the large director's table fussed with their wilted collars.

For these fourteen men were helping to bring a new Plan into the world.

It was not an easy delivery. It seemed at times as though the baby, foreseeing its hectic future, preferred not to be born. And yet the men around that operating table were experienced at their work. They had given birth before to other obstreperous infants. One of their brain children—the Production Requirements Plan—had just succeeded that very week in stuffing all American industry into its capacious mouth.

At the head of the table, flanked by his attorneys and advisors, sat one of the Chief Administrators of PRP. As he took his seat to act as a sort of Godfather to this newborn child, he turned to his eldest legalite and said:

"Don't forget to tip me off when the time comes for me to make sarcastic remarks about this new-fangled proposal!"

Introducing Vertical Allocation

In the center of the table stood a little radio transmitter and receiving set. It was a "Walkie-Talkie" such as our Marines have carried on their backs to the outposts of the world. For the authors of this "new-fangled proposal" of flowing materials from the top—Mr. Julian Armstrong and the writer—had selected this Walkie-Talkie as a graphic means of illustrating the operation of the plan.

A flip-over presentation, typed in large jumbo type, carried the progress of vertical allocation step by step through the stages of material control. Only two simple forms were required for the operation of the plan.

This meeting had been called by Donald Nelson as the plan had been previously endorsed by high authorities of the War Production Board and required now only the approval of the fourteen men present in this room for the experiment to take final shape.

The presentation was very well received. But the Administrator at the head of the table, flanked by his advisors, remained obdurate. He turned to the writer:

"I can't see anything your plan will do that cannot be accomplished by a Triple A."

Carefully, and at length, all the points of the presentation were covered again. We stressed the integration of component parts to stop the flow of planes without propellers, tanks without treads, radios without antennae. The necessity of tailoring demand to suit supply was gone into again. The ability to make policy determinations based on detailed information for complete end products was emphasized. The integration of primary and secondary consumers' requirements was pointed out. The allocation of all critical materials one as against the other was made clear for a second time.

But the Administrator held his ground.

One by one, top men of the War Production Board, convinced of the definite merits of vertical allocation in a War of Scarcity, jumped to their feet and tried to convince the Administrator that the new plan should at least be tested.

The Administrator refused to budge.

At last the matter was brought to a vote. As the vote was being taken, the Administrator jumped to his feet and rushed for the door.

"I've got an appointment," he chortled as he slammed the door behind him.

The vote was never completed, and the stillborn babe was left gasping for the breath of life.

But the slap on the back that was needed was not long in being administered. From the head of the table a thin-jawed, keen-eyed man advanced toward the writer.

"That was a masterly presentation," he remarked. "I am entirely sold on your idea. Tomorrow I will

arrange for you to make that presentation to the top Generals of the Service of Supply."

The speaker was Ferdinand Eberstadt.

Meeting With the Generals

The meeting with the Generals took place the following morning. There were enough stars in that room for a Christmas tree. The writer was so nervous when he started to make the presentation that he knocked one ash tray off the desk, and when he started to retrieve it, he kicked over a cuspidor. Brigadier Generals kept running in and out carrying papers, and to make matters more complicated the writer was told that he had exactly eleven minutes to make the presentation—a job which usually took half an hour.

The presentation was well received, and the eleven minutes were voluntarily extended to nearly an hour. All of the Generals and Admirals agreed that flowing materials from the top under this vertical system would help enormously to get production going smoothly again.

Other conferences with the writer and his associate followed for a period of more than a week. High officials in the War Production Board came to the aid of the new plan and between the civilian powers and those of the Army and Navy the experiment was at last approved. Even the Administrator was reluctantly convinced, and the necessary papers and authorizations were signed.

Then Donald Nelson wrote a personal letter to the Navy Bureau where Armstrong and the writer were employed, and in due course they were transferred to conduct America's first experiment in vertical allocation. It was called Contract Production Control.

Help from Hitler

Out of Contract Production Control and other vertical allocation plans grew the present Controlled Materials Plan. Much has been learned. Much more remains to be learned before materials can be flowed from the top with maximum efficiency.

Many minds—both in Washington and out of it—have worked hard to make the CMP a success. But Father Time, who drives the chariot of war, has driven the planners with a relentless lash. Perhaps some of the welts left in this mad dash to rush the CMP to completion are still unhealed. Perhaps the ointment of experience may help salve these wounds, to make the passage of CMP as smooth and painless as possible as it courses through the body of American industry. But first let us look at the history of the Controlled Materials Plan and see from what medicaments this panacea was put together.

Six basic sources were available on which to draw for information in setting up the Controlled Materials Plan.

Let us see what these six sources were and to what extent they were used.

The first source was the German system of vertical allocation. For a system of warrants for materials has been in use in Germany for several years. However, owing to the inaccessibility of this information at the present time it was hardly possible to make an exhaustive study of the subject.

The German plan did, however, serve a purpose in getting vertical allocation started, as a short incident (which occurred before the Contract Production Control experiment was finally approved) will illustrate.

Nearly everybody in the War Production Board, it seemed to us, from the shipping clerk in the basement to the brass hats on the top floor, had approved CPC and signed the necessary forms. Then we learned that one more form still remained to be signed. The name of the signer was an imposing one and he was hard to see. But fortunately I carried the papers myself to his office and his door was open. The next thing I knew I was sitting at his desk and he was asking me the meaning of this new thing—Contract Production Control.

"Who has approved this new and revolutionary idea?" the man asked me.

"Well," I replied, "to start at the bottom, it has been approved by Adolph Hitler. . ."

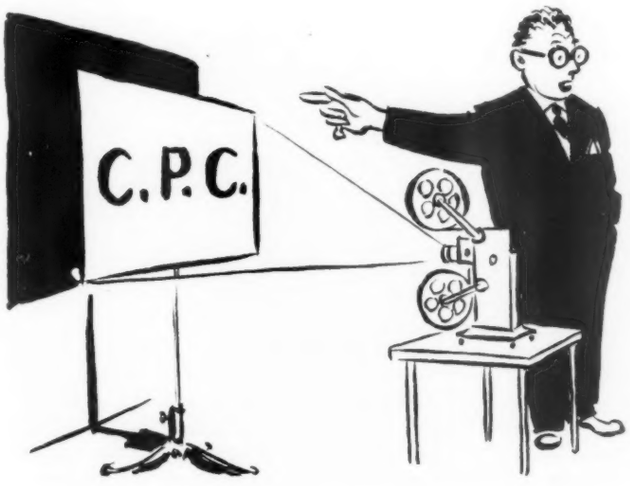
"That is enough for me," said the great man. "His production seems to be running pretty well. I suppose now you are in a hurry to get my signature."

"No, Mr. X. I'm in no great rush." I looked at my wrist watch. "I have twenty minutes before the printers need the copy."

He signed on the dotted line and I am still grateful for the help we got from Hitler.

Other Sources

A second source of information on vertical allocation was the British warrant system. But here also there were certain drawbacks. The British system was applied to steel only (carbon and alloys) and we and the other sponsors of the Contract Production Control experiment did not feel American produc-



tion could be controlled with less than three of the most critical materials: steel, aluminum and copper, with the possible addition of rubber. Moreover, the British system was too circumscribed both as to quantity and geographical area to give us a very clear indication of how the system would operate in our own country. And besides, we did not favor the actual use of warrants but felt that the passing down of a certificate number or allotment number assigned to each end product and to each individual prime consumer would be the most effective way of controlling the flow of materials. The writer still feels this to be true in spite of the emphasis placed at present on the issuance of actual warrants or authorities to purchase for each individual material to each individual consumer. The writer views this as unwarranted and unnecessary paper work.

A third source of vertical allocations was the automotive plan originally known as the General Motors plan. This plan, which the writer studied in some detail in Detroit and discussed with the president and other high officials of the General Motors Corporation, also concluded that the use of warrants was unnecessary and stressed the importance of an excellent bill of materials. It also favored control through four materials only. One weakness of this automotive plan, however, was that it gave too much authority to the prime consumer and submitted only summary bills of materials.

The Kanzler Plan

As a fourth source, there grew out of this automotive plan the Materials Scheduling Plan, sometimes known as the Kanzler plan. This plan again allowed too much authority to the prime contractor.

The writer received the compliment of being asked by Mr. Ernest Kanzler to redraft the Materials Scheduling Plan and put it "into plainer English".

The writer observed these instructions and although he rewrote the plan from start to finish, he left intact its original principle of giving full latitude to the prime consumer and allowing him to start production before finishing his bill of materials. Subsequent events proved this to be unfortunate; for it was this very point of trusting prime consumers to order materials before they had submitted the bill of materials that wrecked the Materials Scheduling Plan.

A fifth source of vertical allocation was the Contract Production Control experiment, which will be referred to in more detail in a later chapter.

A sixth source—and one of the most important ones—of the Controlled Materials Plan was the so-called Steel Quota Plan, better known as the Steel Budget Plan.

Quotas and Budgets

It is one of the little ironies of life in Washington that the Steel Quota Plan was first presented by Reese Taylor, then Chief of the Iron and Steel Branch. It was the reluctance of the War Production Board to accept a Steel Budget Plan at that time which was largely responsible for Mr. Taylor's resignation as Chief of the Iron and Steel Branch. And yet hardly had Mr. Taylor returned to the beauties of his native State of California than the Steel Quota Plan—changed in name only and now called the Steel Budget Plan—came up for serious consideration.

The two main differences between the Steel Budget Plan and the other plans previously outlined were these: it was definitely limited to steel alone; and, it was primarily interested in balancing steel supply and demand and made all other matters such as bills of materials, time lead factors and scheduling subsidiary to that balancing act.

Now at this precise moment Mr. Ferdinand Eberstadt appeared upon the scene, having been appointed by Mr. Donald Nelson to the position of Vice Chairman for Program Determination; or in plainer language he became the man behind the gun, the cutter of the Gordian knot, the man to see that material supply and demand were brought into balance.

The writer feels personally that this country is fortunate in having a man such as Mr. Eberstadt to do this Herculean job of cleaning out the Augean stables. For he is just a little on the ruthless side. Perhaps his long association with the military, as Chairman of the Army-Navy Munitions Board, has inclined him in favor of the military way of getting things done. Now the military way of getting things started and stopped is very simple. Things are started with a "directive". They are stopped with a "freezing order".

One Week to Go

Immediately upon taking office—in fact the Sunday before—Mr. Eberstadt issued a directive to the effect that the supply and demand of steel was to be brought in balance "one week from today".

To the new head of the Iron and Steel Branch, in office less than a week, this was a startling directive. A series of hasty conferences was called in an effort to find someone in the Iron and Steel Branch capable of writing a complete plan and documenting it with all the necessary forms and procedures in a short week's time.

Then, fortunately, someone remembered the rejected and neglected Steel Quota Plan. It was quickly unearthed, dusted off, freshened up with a new title, retyped, and refurbished with new charts.

By this time committees were meeting all over the War Production Board attempting to reconcile widely divergent opinions. Mr. Eberstadt, working on the sound principle that two heads are better than one, began locking diametrically opposing groups in the same room and letting them knock their heads together. In the heat of getting the plan out by November 2, 1942, (Mr. Eberstadt had set that date as a deadline) committees met early and late. As fast as these committees could agree on a single point, it was typed out and rushed to the printers.

Almost daily, copies of the Controlled Materials Plan's most recent draft began to come off the press. Each of these editions was dated and every copy numbered and registered. Complete secrecy shrouded the operation so that even many of those within the War Production Board, the Army, Navy and the other government services, who had been working and thinking steadily on the subject of vertical allocation for many months, were unaware of the hectic progress that was being made.

At last the fateful day arrived and the Controlled Materials Plan was unveiled. Half a million copies were printed and distributed to industry. The War Production Board's regional directors were called in and the plan explained to them. Lantern slide lectures and charts were prepared and sent out for a series of industry meetings to be held from coast to coast. The letters CMP were on everybody's tongue. For America had awakened to find itself under the Controlled Materials Plan. The unwanted and unloved child, born less than four months earlier amid torment and neglect on that fifth floor of the War Production Board had, in the short space of about 100 days, grown to a lusty manhood and slain the industrial dragon, PRP.

II. IT'S YOUR MOVE NOW

BEFORE discussing what your next move is, let us pause, as it were, for station identification. For your next move will depend very largely on who you are and at which station you get off. For example, you may be a primary consumer or a secondary consumer or you may be an employee of a WPB industry division or perhaps you are an officer or a civilian employed by one of the Claimant Agencies. So, let us start with a few brief definitions.

For example: You are a *Prime Consumer*, if an Allotment of Controlled Materials is made directly to you or your firm by a Claimant Agency or by an Industry Division. You are, in other words, on the top of the pile in regard to that particular product and you get your Allotment directly from the boys who hold the Controlled Material purse strings.

You are a *Secondary Consumer* if you have to go to another manufacturer for your Allotment of Controlled Materials, whether he be a Prime Consumer or another Secondary Consumer who happens to purchase parts from you.

By *Controlled Materials,* we mean at present only steel, aluminum and copper. If it isn't made of some kind of steel, aluminum or copper (including of course copper-base alloys) it isn't made of a Controlled Material.

You have an *Allotment* when you have a piece of paper authorizing you to purchase for yourself or to pass on to somebody else the right to purchase a given quantity of a Controlled Material during a given month.

The number on that piece of paper is called the *Allotment Number* and you will need that number after July 1, 1943, if you expect to get any Controlled Materials.

You work for a *Claimant Agency* if you are employed by either the War Department or the Navy Department or the Maritime Commission or the Aircraft Scheduling Unit or the Office of Lend-Lease Administration or the Board of Economic Warfare or the Office of Civilian Supply. Nobody else has a claim on a direct quota of Controlled Materials, for there just aren't any other Claimant Agencies.*

The *Requirements Committee* is an exclusive club, whose members include a representative from the State Department and from each of the seven Claimant Agencies. Officially, they supervise the cutting up of the three Controlled Materials pies into seven quite unequal slices. But it is actually the Chairman of the Requirements Committee—Mr. Eberstadt—who bakes the pie, cuts the pie, hands out the slices, and presumably washes the empty pie plates.

If you are a manufacturer, you probably already know about the WPB *Industry Division* which concerns you. There are over thirty of them.

There are only three *Controlled Materials Divisions* —for steel, aluminum and copper. They deal with the producers of those three metals and with the Requirements Committee. As a manufacturer, you are not apt to have much traffic with the Controlled Materials Divisions unless you get into hot water by trying to get too much of a Controlled Material or run into a blind alley and get too little.

Nearly everybody knows what a *Bill of Materials* is, though few of us have ever prepared a really good one. A first class Bill of Materials must show the gross and net weight of every material that is needed to make one of the end-products which the Bill covers. It must include not only the three Controlled Materials in the forms prescribed, but also nearly everything else.

Everything else means the *Non-Controlled CMP Materials.* There are sixteen Non-Controlled CMP Materials.

A good Bill of Materials also shows exactly how many months ahead of time each of the materials is

*Editor's note: Since this article was written, the Controlled Materials Plan has been complicated by extending the number of Claimant Agencies and thus increasing the separate programs to be reconciled under the Plan.

needed (sometimes laughingly referred to as a *Time Lead Factor*).

It also lists *B Products*. B Products are messy little things, which go into so many different types of end-products or consume such infinitesimally small quantities of Controlled Materials or are just such dog-gone nuisances that it was decided to leave them out of vertical allocation altogether. I have written a whole chapter on B Products a little later on, which may help to clear up this matter in your mind or to leave you hopelessly confused.

As the Plan runs the whole gamut from A to B, any product which isn't a B product is—can you guess?—an *A product*.

And that's all for today, children. Class dismissed.

How CMP Affects You

Well, perhaps the first move you had better make is to try to understand what the CMP plan is all about and then begin considering how it affects you.

So, let us try to combine these two ideas and view the Plan through the eyes of several different people. It will look something like one of those Eugene O'Neill plays in which the actors tell all their innermost thoughts, including some they could better have kept to themselves.

It goes like this:

Vice-chairman of the War Production Board: We must balance demand to supply. That's what they put me in here for. That's my job and the CMP better do it, or else.

Steel, Copper and Aluminum Divisions: How am I supposed to know how much of each shape and form and type of my Controlled Material to order the mills to manufacture each month unless I have a national Bill of Materials showing demand for several months ahead? They tell me CMP knows all the answers.

Industry Division Chief: I'm sick of planes without propellers, tanks without treads, radios without crystals. Perhaps CMP can schedule all these critical components, so that they will come out on the nose.

Claimant Agency: It's all very well to have $40,000,000,000 a year to spend, but what's the good of money or contracts let, if you can't get the materials to complete them? I am willing to cut back my schedule if CMP will promise me that the schedules I authorize can be met.

Prime Consumer: If I didn't have to spend half my own time chasing down to Washington for PD-25F's, and all the time of my fifty expediters gallivanting around the country trying to snatch materials from my competitors, I'd get more production and more profits. They tell me that CMP can cut that red tape to the bone.

Secondary Consumer: It's all very well for the Prime Consumer to place purchase orders at the last minute, but what are we supposed to build the goods out of, hot air? Now, if they would send the critical materials along with the purchase order—that would be different. If CMP does that, I'm for it.

The Case History Method

Perhaps it can be assumed now that you have a rough idea of the purposes of CMP. Now, how do you go about it to help achieve them?

Let us now change over from the dramatic to the legal or medico-legal way of explaining things. Case histories—you know—the kind that start: "Mr. A's car ran into B causing acute concussion of the brain. Mr. B sued. . . . . "

Or the case history that starts, "Miss B was 22 years of age and had never been married, although she was engaged to marry a man 33 years her senior who was head of a glue factory. Her doctor reports. . . . . "

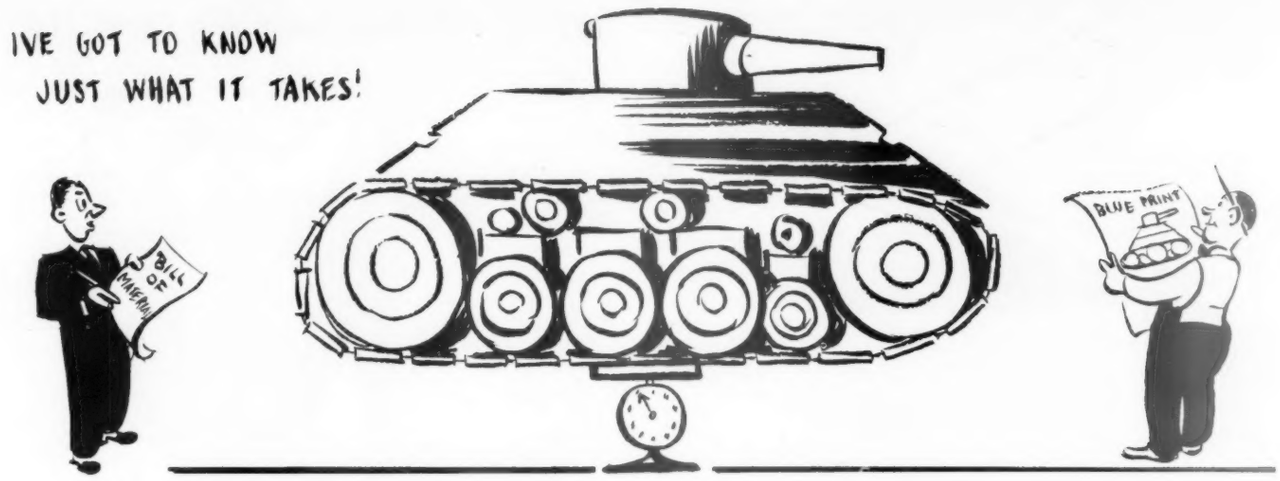
Or the one that starts, "There were two traveling salesmen from Salt Lake City." No, I guess that's another story.

For our Case History, let us take the case of a Prime Consumer manufacturing light tanks for the Army Ordnance Department. He has just received a contract calling for 1,000 a month of the particular model of light tank, with which he and his sub-contractors are completely familiar.

The Prime Consumer has also received from the Army Ordnance Department a request for a Summary Bill of Materials and the proper form has been sent to him. He has been requested to return this form within sixty days.

Collecting the Data

The Prime Consumer knows he will be called on later for a Detailed Bill of Materials, which will require recourse by him to each of the Class A Secondary Consumers directly under him. So he proceeds at once with the help of his production and engineering departments (if he has them) or his office boy (if he hasn't). They analyze that light tank out into all its component parts, showing the name of every part, who



makes it, the purchase order number (when issued), number of parts in complete assembly, additional parts required for spares, if any, additional parts required for manufacturer's overages (assembly losses), and the Lead Time Factor in months. It is well to group this list of parts into assemblies, such as motor assembly, turret assembly, etc. A space at the left is provided for grading the parts as to A Products or B Products.

At the present time there are two kinds of B products—B1 and B2. B1 products include complicated sub-assemblies such as small motors, compressors and pumps. All B1 items are included as such by the Primary Consumer in his Summary Bill of Materials. B2 products are a more common or garden variety type of components such as hardware, bolts, nuts, rivets, screws and washers, and these B2 products are not included in the Bill of Materials.

Government Furnished Equipment (G. F. E.) must also be included just like B1 products by the Prime Consumer, showing name, purchase order number, and quantity of machine guns, periscopes, and similar G. F. E. articles required to complete one tank.

These B1 and B2 and G. F. E. items include all the components for whose Controlled Materials the Prime Consumer is *not* responsible. What is left are Class A items and he is master over the destiny of all of the Controlled Materials that go into the Class A items on that list, whether he makes them or not. If he is in a hurry to get out his Summary Bill of Materials and the deadline is drawing near, he can guess at the quantity net and gross of each of the Controlled Materials. He had better make a good guess in the form, shapes and code numbers listed because if his guess is short, his Allotment is going to be short. He lists Non-controlled materials too, and here he can use his office boy, as these materials will be purchased under a preference rating with no limit as to amount except that they must not exceed the requirements of the authorized schedule, whatever that may turn out to be later.

The Bill of Materials

Now, making out a Bill of Materials, even a Summary Bill of Materials, is no joke. I've written a whole chapter on it later on, and when you have finished making out your Bill of Materials, you will be able to write a volume on the subject yourself (expurgated, of course). One thing is certain, if the time allowed the Prime Consumer is enough, he had better gather his Detailed Bill of Materials first and then prepare a Summary Bill of Materials afterward. He may have to guess at a few of the detailed parts, on which his Secondary Consumers are slow in reporting, but that is far better than guessing at all of them as he must do when a Summary Bill comes first.

The Prime Consumer might speed the response of the secondary consumers if he sent along a purchase order based on the schedule he has received for 1000 tanks a month. Secondary consumers are human, very human; and they like to feel that the paper work they do is going to bring in some folding money. Experiments conducted on CPC showed better and quicker returns when the forms went out with a nice, new purchase order.

If any readers would like to adapt for their purposes, the form marked CPC-2 (Rev.), they are welcome to do so.

Well, all of sixty days are gone now and at least the Summary Bill, if not the Detailed Bill, has been prepared and returned to the Claimant Agency—in this case, the Army Ordnance.

Now You May Apply

The Claimant will reciprocate by sending you an Application to purchase Controlled Materials. Before you fill out this Application, you will have to know how much of the Controlled Materials is needed each month to make the thousand tanks a month which the Army Ordnance Department has entered on the face of the Application, in the space reserved there for the production schedule.

If you have used the CPC-2 (Rev.) form attached to all purchase orders for your listed Class A products, you will know the answer to that one. You will also know the exact Time Lead Factor of each of your Secondary Consumers and the amount of inventory they have available for this contract. If you have not done this, it would be well for you to secure sufficient extra copies of the Application forms from the Claimant Agency or your regional WPB office and mail one to each of your listed class A Secondary Consumers. In that case, you will have to fill in on the face of the Application form the number of parts which they are to produce for you and the months in which you require them. In other words, you will be duplicating the information usually contained on your purchase order and will be obliged to send the purchase order along in addition.

In either case when all of the Class A items that go into the tank have been reported by your Class A

suppliers or you have estimated their requirements, including the Class A items, which you make yourself, you will add this information together and enter the monthly requirements on the back of the Application form. When you sign and return this form to the Claimant Agency, you are telling the Army Ordnance Department that if they give you the Controlled Materials you ask for in the months in which you request them, it will be exactly the right amount (not too little and not too much). You also agree to supply Controlled Materials to cover every one of the listed Class A products included in your tank and you agree that the scheduling is such as to permit you to deliver the 1,000 tanks a month now scheduled.

Permission to Purchase

When the Army Ordnance Department sends you an Assignment or Allotment Number and permission to purchase Controlled Materials, it will also contain an assigned preference rating. This preference rating you will use to get Non-Controlled Materials and to order Class B1 and Class B2 component parts. The fact that you have an Allotment Number and have received an authorized production schedule also gives that preference rating a higher standing in relation to the same preference ratings without an Allotment Number.

You will now make an extension of your Allotment to Secondary Class A Consumers who are directly under you and to whom you have issued purchase orders. Unless you want to spend a year in jail or pay a $10,000 fine, you will not extend total Allotments for more Controlled Material or for earlier shipment of Controlled Materials than authorized to you by the Claimant Agency. This total includes not only the Controlled Materials on which you extend Allotments, but also those which you consume yourself as a part supplier under that contract.

As your books are open for inspection for a period of two years and you are responsible for every pound of Controlled Material for which you extend Allotments, you will want to keep a very accurate record of the extensions made by you and maintain a constant monthly balance on your books under each contract, crediting the amount of Controlled Materials allotted to you for that month and debiting the amount of Controlled Materials extended by you or purchased directly by you against that Allotment.

If the amount of material allotted to you exceeds the requirements of all your Class A suppliers and your own requirements, you should promptly advise the Claimant Agency, as that material is being reserved unnecessarily and may now be extended to some other consumer.

If the amount of Controlled Materials allotted to you proves insufficient or is not allotted in time for your requirements or those of your Class A Secondary Consumers, you should promptly advise the Claimant Agency who will furnish you with a suitable Application for additional Allotments.

Now, place orders for Controlled Materials with the Mills who regularly supply you, using your regular order form and attaching thereto a proper Purchase Authority, showing the product, the amount authorized, the month of shipment authorized, the Allotment Number. Three copies of this are sent to the materials supplier, one of which he forwards on to the Controlled Materials Division and presumably one of which he returns to you with a notation in the column marked, "Entered or Rejected".

Failure to get your order accepted in spite of your Allotment Number for any Controlled Material at any of your usual sources of supply should send you promptly back to your Claimant Agency, who can either contact the proper Controlled Materials Division and have your order scheduled on another mill or the Claimant Agency can supply your wants from warehouses in which they keep earmarked Controlled Materials for just such emergencies.

See that your Secondary Consumers notify you promptly of any failure to get their Controlled Material orders accepted for the month required.

So much for the Prime Consumer of Class A products.

The case of the producer of Class B products is similar. The main difference is that regardless of where their orders come from, producers of Class B Products look to just one Claimant Agency for materials and that is the Office of Civilian Supply. They do not deal directly with the Office of Civilian Supply but with one of its thirty-odd sub-divisions, now known as Industry Divisions.

There is another difference and that is that the producers of Class B products will not be obliged to operate on an end-product schedule quite as rigid as that of the A Products. They will be authorized to apply for and receive Controlled Materials on a plant basis covering estimated monthly or quarterly consumption. And they may not be required to make Bills of Materials at all for B2 products and only "guesstimated" Bills for B1 products.

The case of Secondary Consumers making Class A products is simple. They will make Application for Controlled Material to their Prime Consumer or another Secondary Consumer directly above them—the one from whom their purchase order comes. They will make out Bills of Material only if, as and when asked to do so.

All manufacturers should be guided by these rules:

1. Consult the proper Industry Division of the War Production Board to determine which of the products you manufacture are Class A and which are Class B1 and which are Class B2 products.
2. Determine if possible from the Claimant Agencies, for whom you produce your Class A end-products, when they will require Bills of Material and how much time they can allow you to prepare them.
3. Determine from the appropriate WPB Industry Division, on which of your Class B end-products they will require Bills of Material and how much time they can allow you to prepare them.
4. Continue to apply on form 25-A under PRP for materials on a plant basis for all B1 and B2 products until otherwise instructed.

Caught Off Balance

Now for the case of the Claimant Agency. If the Claimant Agency (the Army Ordnance Department, for example) has already secured estimated Bills of Material, their operation under CMP will be greatly facilitated. And Army Ordnance actually does hold static Bills of Material on nearly half of their contracts. This information punched on ten million International Business Machine cards will greatly facilitate their estimating their requirements and will perhaps enable their Prime Consumers to proceed promptly with the filling out of Detailed Bills of Material with some assurance that the schedule, which appears on their Application, will not be subject to too much change after their Detailed Bills are reviewed.

The Navy also set about some time ago to gather information on their requirements of basic industrial materials. Their case, however, is not as simple as that of the Army, since the Navy does not go in for mass production items quite to the extent of the Army and their major item—ships—does not lend itself to rigid advance estimates.

The Bureau of Economic Warfare is in a still less favorable position since it is almost impossible for them to estimate in advance what the requirements for Controlled Materials will be three months hence in the many foreign countries which they serve.

Perhaps the best situated of all the Claimant Agencies is the Aircraft Scheduling Unit, which for the past two years from its headquarters at Dayton, Ohio, has been gathering Bills of Material on aircraft. These bills in many cases, however, have been limited to the parts produced by the plane assembler, with many of the other components left to the mercy of PRP. So that, in spite of a large staff who have serviced these aircraft PRP applications with loving care, this has caused a succession of bottlenecks in aircraft assembly plants.

At a large Eastern aircraft plant I recently found an example of this partial Bill of Materials. This manufacturer was constructing a bomber containing 18,000 parts. 10,000 of these parts were built in his own plant and on these he had exact Detailed Bills of Material on every part.

"What about the other 8,000 parts?" I asked him.

"Oh, we buy those from our sub-suppliers and it's up to them to find out what they need, make up their own Bills of Material, and follow up with their expediters until they get the stuff."

"And if they don't?" I asked him.

He shrugged his shoulders and led me over to a large wall chart in his office. It was November 1 and a narrow, colored band running up and down the chart showed the status on that day of the plant's production. Another series of lines ran across the chart.

"That top line represents materials for the parts we make," the manufacturer pointed out. "As you see, we have everything in already for plane number 1000, which isn't due off the assembly line until next Spring."

"And this short line below it," I asked him, "which barely reaches up to plane number 400?"

"Oh, that's the parts we buy. That's why we are a little behind schedule. They're so slow in coming in."

"Here's another bottleneck," he added. "Quite a headache."

He pointed to another short line on the graph. "That's G.F.E. You know, Government Furnished Equipment, like machine guns, instruments, propellers. We are always behind the eight ball on that stuff."

III. ASK ME ANOTHER

OSCAR Wilde was once asked by a lady friend, (at least that's how the story goes), whether he considered her questions impertinent.

"Madam," said Wilde, "questions are never impertinent. Answers sometimes are."

Accordingly, if the gentle reader has not found among the few elementary questions listed here the answers to his own burning problems, let him send his questions to the writer in care of the PURCHASING Magazine. If the author is unable to answer the questions, he will tear them up and forget about the whole thing. If he knows the answers and they are not too impertinent he will mail them back at his own expense.

So, here goes.

Dear Answer Man: I manufacture electrical switching devices and am doing very nicely under PRP. Must I change?

ANSWER: Electrical switches have been rated as Class B products. So keep your seat. You stay on the train until the end of the line, which is July 1, 1943. Thereafter, you will be given a form so similar to PD-25-A that you will thing you are on the same train and continue to get the Controlled Materials for those electrical switches much as you are getting it now.

Dear Teacher: Am I supposed to know whether I am manufacturing Class A or Class B1 or B2 products?

ANSWER: A list of Class B1 and B2 products will be published before long. In the meantime have your Washington representative take your catalog into the proper Industry Division of the WPB. Or check with your Claimant Agencies or your local manufacturers' association.

Dear Sir: Can I be a manufacturer of both Class A and Class B products at the same time?

ANSWER: Yes, you can. And in that case Controlled Materials for your Class B products will come from an Industry Division and will be sufficient to cover your requirements for those Class B products plus those of your Class A Secondary Consumers who make components therefor.

Controlled Materials for your Class A products will come from a Claimant Agency if your contract is with them or from another Class A or Class B consumer, if you have a purchase order from them.

Question: When do I start making out a Bill of Materials?

ANSWER: When a Claimant Agency or other party who buys from you asks you to.

Question: Do I include all Controlled Materials in my Bill of Materials?

ANSWER: No, just the Controlled Materials that go into the A products which you and your direct suppliers make. You just list the B products and let their manufacturers get their own Controlled Materials from their Industry Division. You don't even list the B2 products.

Question: How do I get materials for maintenance, repairs, and operation?

ANSWER: On a separate form to be provided later. This will also include construction items totaling less than $500. Larger construction requirements will have a form of their own, covering construction and facilities.

Question: How do I get Non-Control Materials?

ANSWER: On a preference rating.

Question: Can I be both a Primary and Secondary Consumer at the same time?

ANSWER: You certainly can. You can be making trucks for the Army as a Class A Primary Consumer and wheels for another truck manufacturer as a Class A Secondary Consumer and carburetors for the Air Corps as a Primary Class B Consumer. You can't be a secondary Class B Consumer because all Class B producers go directly to their Industry Division for Controlled Materials (unless otherwise instructed). Consequently all Class B producers are Primary Consumers.

Question: Does a Controlled Materials Supplier have to fill all orders received with Allotment Numbers.

ANSWER: Yes, until he is scheduled to capacity. (Actually 105% or 110% of capacity, depending on whether or not he is operating under a directive from the Controlled Materials Divison.)

Question: Does a Controlled Materials Supplier have to ship in the months specified in the Allotment?

ANSWER: No, he can ship 15 days ahead of the month specified if he has cleaned up his previous orders or he can ship 30 days later (a full month after the month specified).

Question: Does a consumer have to extend Allotments to his Secondary Class A Consumers?

ANSWER: No, he can act as their Controlled Material purchasing agent if he wants to.

Question: What does the W-1234-567-16, etc. mean on Allotment?

ANSWER: That is the Allotment Number. The W stands for War Department, 1234 for the program, 567 for the approved schedule and the 16 stands for the month of shipment of the material by the Controlled Materials Supplier. The Army has been using this system since January, 1942, and the first 12 numbers were all used up this year. So January 1943 will start off with Number 13.

Question: I am all mixed up about Allotment Numbers and preference ratings. How do they affect deliveries?

ANSWER: Controlled Materials will be delivered on Allotment Numbers only. Non-Controlled Materials will be delivered on preference ratings only. Both Allotment Numbers and preference ratings will control the delivery of fabricated parts. Allotment Numbers mean scheduled production, so they will command first delivery in accordance with their rating structure. Then come the preference ratings without Allotment Numbers. Of course there is an exception. Triple A leads everything with or without Allotment Number.

Question: What about inventory?

ANSWER: It is up to each Consumer, whether Prime or Secondary or A or B, to secure from each Secondary Class A Consumer directly under him the *minimum* requirements to complete his orders. That means that available inventory must be deducted. And Time Lead cut to a minimum to avoid inflated Allotments.

Question: To whom should inventories be submitted and when?

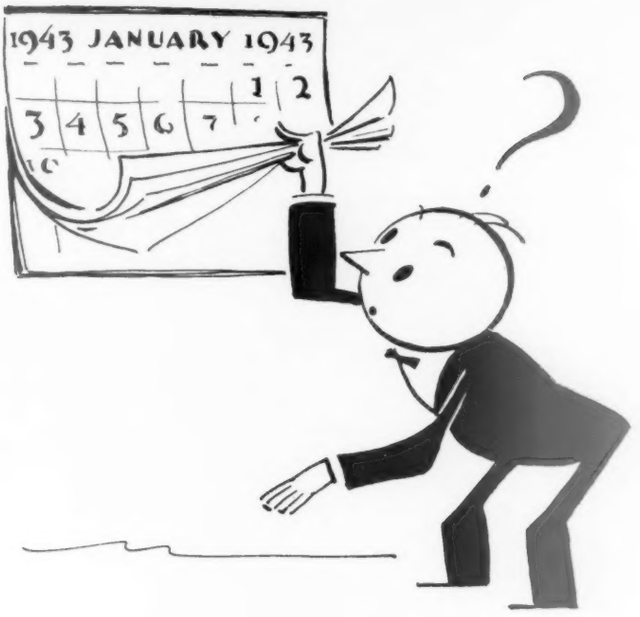
ANSWER: Inventories will be submitted quarterly to the Materials Redistribution Branch of the WPB.

Question: There are only nineteen materials shown on the CMP Materials List. Should our Bill of Materials show any others?

ANSWER: No. Why gild the lily?

Continued on page 186

WHAT BUSINESS MAY EXPECT IN 1943



By HERBERT N. McGILL
President, McGill Commodity Service

A projection of economic trends, industrial developments, and government controls, as they will affect American industry in the second year of the war

IT is customary in the business world to consider statistics pertaining to production, consumption, inventories, expenditures, earnings, etc. on a calendar year basis. The curtain has now dropped on 1942, a year of unprecedented physical accomplishment and also a period featured by tremendous confusion. The high spots consisted of a severe shortage of basic raw materials, unsuccessful experimentation in the methods of distribution, a rapidly diminishing labor supply, record-breaking farm production, new peaks in government spending representing our war effort, inauguration of price controls, the beginning of rationing, the opening of the second front, and finally, the necessity of reorganizing our administrative forces.

There were many other important events chronicled in 1942, but at this time there is little to be gained by overstressing events of the past. Attention is now focussed on the turn of a new year and the prospective economic developments that are due to materialize. One thing is certain, namely, that the transition from a peace to a full 100% war economy is now for all practical purposes complete. From now until the end of the war this country will engage in mass production of all sorts of war equipment. It is altogether too early to make any definite plans for the post-war period. Irrespective of what methods are employed to cushion the shift back to a peace economy, and regardless of how much money is spent, there is bound to be ultimately a serious reaction from the abnormalties created by the war and the wave of gigantic government spending which in turn has necessitated the imposition of burdensome taxation. Plans at present must be largely confined to the war period, and while 1942 has been a year of sensational developments, the year 1943 is destined to bring even more startling comparisons.

The study of barometric trends in the table herewith should prove of value to Purchasing Agents in reaching important conclusions from the standpoint of production, distribution, and in formulating a practical budget. The tabulation shows the 1941 actual average or total, the 1942 estimate, and the prospective 1943 figure for nineteen individual economic phases, each of which has considerable barometric importance.

Status of Production

During the current year the Federal Reserve Index of Industrial Production averaged about 180, representing a 15% increase over 1941. No matter how much money is spent, there is a limit to rapidly expanding output due to the restricted supply of raw materials, labor, power, and transportation. A projection of current trends suggests an average production index figure for 1943 of 210, and increase over 1942 which measures 17%. This stimulation will be due exclusively to a further broadening in the output of durable goods. The Durable Goods Production Index in 1941 stood at 194, jumped to 248 this year, and promises to average 280 for 1943—an increase of 13 over the current year. This can be done only at the expense of production for civilian consumption. Hence, the Nondurable Goods Production Index which averaged 140 in 1942 as against 135 in 1941, appears headed for a 1943 average of 110, or a drop of 21% from the present year. This is extremely important for two reasons: First, the much-talked-of shortage of finished goods and the inescapable hardships that follow in the wake of warfare are now for the first time about to become a reality. Secondly, the amount of nonessential goods produced will be more or less in alignment with the amount chronicled during the low ebb of the depression in 1932.

Briefly, the main point to keep in mind is that production of civilian goods must be cut more drastically than was anticipated a few months ago. Consequently, after the holiday period, which incidentally promises to show the biggest Christmas business on record, re-

flecting abundant purchasing power and relatively large stocks in the hands of wholesalers and retailers, there is no possibility whatsoever of prompt and adequate replenishment of merchandise in either large or small department stores. Thus, the stage is being set for a material increase in the number of commercial failures.

Here is another phase that calls for consideration. As the table clearly shows, expenditures for war in 1941 were only about 15 billion dollars, the figure was up to 50 billions in 1942, and the goal for 1943 is 80 billions. Our national income in 1941 totaled 95 billion dollars and jumped to 117 billions for 1942; it is estimated at 125 billions for the forthcoming year. Hence, it is not a difficult problem in arithmetic to figure out that war expenditures constitute 64% of our national income. This is a fairly good indicator as to what percentage of our spending will be devoted to non-essential and civilian goods. Obviously, there can be no alternative because nothing can stand in the way of achieving our goal in the production of tanks, planes, guns, ships, munitions, etc., which are needed in ever-increasing volume right at this very moment and not a year hence.

Farm Income

The appointment of a Food Administrator does not for one moment change the basic problems which confront this nation in 1943. Farm income in 1941 was approximately 11.6 billion dollars. The 1942 income will reach 15.6 billions and is likely to expand to 16.3 in 1943. We predict that the higher figure for 1943 will be largely due to higher prices and government subsidies rather than to any important expansion in the volume produced. Despite the fact that bumper crops were harvested this year and warehouse space is filled to capacity, yet the outlook is not particularly reassuring. Preventing labor from leaving the farms should have been done a year ago. Now it is much too late to lock the stable door. Then, there is the problem of securing an ample supply of fertilizer, farm machinery, and transportation. No one can foretell what growing conditions will be, but we seriously question whether production records of 1942 can be broken in 1943. This country must now feed our fighting forces, and our aim is to increase the over-all military force to ten million men by the end of 1943. In addition, in order to prevent a catastrophe we must feed about 70 million people in Allied countries. What exact proportion of our total food supplies this task represents is problematical but it is safe to say that at least 25% of our production of meats, dairy products, and staple foodstuffs is earmarked for the Government and lend-lease shipments, particularly to Russia and England. No one in this country will go hungry, but the quality and quantity six months hence will be materially different than is the case today. Moreover, the story of rationing is only in its early chapters.

Cost of Living

Space will not permit a detailed treatise on each of the individual barometers tabulated. To cover some of the high spots as briefly as possible, note that a projection of the underlying trend of living costs indicates an average in 1943 of 124.0 as compared with 116.4 in 1942—an increase of 7%. Our studies lead to the conclusion that the most effective period of price control has already taken place, and with the passing of each month it will be more and more difficult to

A FORECAST OF BUSINESS BAROMETERS FOR 1943

INDICATORS	Here's what we did in 1941	The first year of the war (estimated on the basis of 11 months reports) 1942	Here's what we may expect in 1943	This is what it means to business % 1943 above or below 1942
Federal Reserve Index	156	180	210	17%
U. S. War Expenditures (bill. dollars)	15	50	80	60
National Income (bill. dollars)	95	117	125	7
Farm Income (bill. dollars)	11.6	15.6	16.3	4
Government farm payments (mill. dollars)	600	650	500	—23
Cost of Living Index (Bureau of Labor)	105	116.4	124.0	7
McGill Commodity Price Index	83.2	97.1	103	6
Durable Goods Production Index	194	248	280	13
Nondurable Goods Production Index	135	140	110	—21
Construction, all kinds (bill. dollars)	11.0	13.25	8.7	—34
Department Stores Sales Index	110	123	105	—15
Chain Store Sales Index	139.3	174.9	155	—11
Coal Production (mill. tons)	502	571	598	5
Shoe Production (mill. pairs)	498	475	455	—4
Steel Production (mill. tons)	82.8	85.9	92.0	7
Iron Production (mill. tons)	55.9	59.0	65.0	10
Cotton Consumption (mill. bales)	9.7	11.2	11.8	5
Rayon Deliveries (mill. pounds)	451.2	480.0	520.0	8
Car Loadings (weekly aver. thous. cars)	812	831	850	2

hold the average down. It is no secret that wage rates have climbed in recent months, and in view of the steady up-hill climb of living costs, there is absolutely no hope of stabilizing wage rates.

The upswing in living costs has caused no furore simply because the advance has proven limited in terms of wirespread employment and record-breaking purchasing power. Now we are about to embark on the first of a series of advances in taxation, and this is bound to change the entire picture, particularly by next March when the inevitable defaulting of tax payments will force Congress to adopt a pay-as-you-go tax program.

Manpower

Production in a number of our basic industries during the past six months has been hampered by a manpower shortage. Workers have flocked to the high-wage-paying industries and the number now in the armed forces has seriously reduced the manpower supply. The Army is now estimated at approximately 4,500,000 strong, and the Navy has increased to 1,100,000. By the end of 1943 it is believed that the Army will total 8,000,000 and the Navy more than 2,000,000. In other words, a further drain on the manpower supply is in prospect in the face of a greater industrial and agricultural need. To obtain the desired production goals, manpower must be allocated by a central authority. As the program stands today, there is central jurisdiction over the allocation of workers between the armed forces and essential industrial and agricultural occupations. The War Manpower Commission recently established a program which represents a step in the right direction, although political factors will prevent the full achievement of the goal. As the program is now set up it calls upon the Government for:

(1) Centralized authority and responsibility for determination of the over-all manpower program.

(2) Centralized authority and responsibility for the administration of the manpower program, which requires:

(a) Transfer of the Selective Service System to the War Manpower Commission.
(b) Cessation of vountary enlistments.
(c) Provision for special calls by the Army and Navy through the selective service system for men with specialized skills.
(d) Coordination by the War Manpower Commission of military and civilian training programs conducted in nonmilitary educational institutions.
(e) Establishment of a strong administrative and operating organization for the War Manpower Commission.

(3) Implementation of the war manpower employment stabilization and migration control policy by wide public distribution, and by extension of the War Manpower Commission's authority to regulate hiring, rehiring, solicitation, and recruiting in labor-shortage areas.

It also calls on management and labor for:

(1) Uniform acceptance of and compliance with the War Manpower Commission's policies and directives.
(2) Elimination of wasteful labor turnover in civilian war activities.
(3) Acceleration in the rate of transfer from non-essential to essential activities.

Highlights for 1943

WAR EXPENDITURES will take 64% of national income.

MANPOWER is the big production problem just ahead.

HIGHER FARM INCOME Represents higher prices, not greater production.

PRICE CEILINGS will be punctured —commodity prices up 6%, cost of living up 7%.

You've just had your biggest CHRISTMAS SHOPPING season—and probably your last one for the duration.

Production of non-essential CIVILIAN GOODS will reach the low of 1932. Remember?

Watch for a substantial increase in the number of COMMERCIAL FAILURES.

TAXES will be collected on a pay-as-you-go basis.

(4) Acceleration in the rate of mobilizing, training, and employing those who are presently unemployed but who are able to render service.
(5) Maximum utilization of labor in a manner insuring maixmum use of the skills and capacities of workers.
(6) Accelerated rate at which men of the military age group who are engaged in essential activities can be released for service in the armed forces.
(7) Elimination of all barriers, restrictions, or obstructions incidental to successful accomplishment of points 1, 2, 3, 4, 5, and 6 above.

Controlling the destinies of millions of workers is a ticklish job for politicians. It calls for strong control and direction, and to date authority has passed back and forth between several government agencies. Centralized authority is obviously needed, and we predict that stricter controls will be established in early 1943.

Wage Policies

There has always been considerable disparity between farm and industrial wage rates. Since the war began the increases in factory wages have widened the differential, and in the past year large numbers of farm workers have accepted industrial employment. The disparity is well illustrated by noting that in September, according to figures released by the Department of Labor, the average weekly earnings of workers in all manufacturing industries was $37.88. Broken down, these figures show that workers in the durable goods industries averaged $44.47 weekly, while in the non-durable goods group the wage averaged $29.71. In contrast, farm wage rates in October, as compiled by the Department of Agriculture, show that workers receive $59.25 per month without board, and $50.83 per month with board. The disparity has been so pronounced recently that two steps have been taken to hold farm workers at their pobs:

First, the Selective Service Board has issued a directive deferring farm workers of all ages including 18 to 45 who are necessary and regularly engaged in war essential agriculture. The deferred farm workers are

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WINGS OVER PURCHASING

Technical advances in aviation, increased production of planes, availability of trained personnel, and a rapid reduction of costs, combine to prepare America for a new era of commercial air transport in the post-war world

By H. G. MAAS

TO present industrial shipping services performed by aviation, the future promises to add importantly. Some facts of present air progress are of interest to the purchasing agent, since, in some cases, they could influence decisions on long range business policies.

Today, the air lines of the United States have a service agreement with the Railway Express Agency. This provides for air cargo pickup, delivery, collection of revenues, and paper work; by present Railway Express trucks, office forces, and handling crews. The express company works for the air lines, in theory, as it does for the railroads. Some air line executives deliver themselves of dissatisfaction with the arrangement, feeling that the railroad background of the express organization precludes vigorous promotion of air-borne shipping. This feeling may be fathered by the fact that the Railway Express Agency is entirely owned and operated by the railroads. Other air line executives, however, praise the present facilities and the job the express company is doing for the air lines, a service the air lines are not now in a position to perform for themselves.

At any rate, the present way of shipping by air when urgency justifies the additional cost, is to deal with the Railway Express Agency. Its charge for a shipment from Los Angeles to New York is $10.00 for ten pounds. Delivery in 19½ hours is claimed.

A Vital Service in the Making

Even with such high rates, the volume of air express has zoomed; business has found it profitable to ship many articles by air express. Often, it makes possible the quick restoration of important production machinery shut down because of a broken part that must come from a factory far away. In many cases, it has been found profitable to reduce costly parts inventories carried in branches all over the country by substituting air shipments.

Some of the many other present uses for air express are in delivery of mats for advertising, radio transcriptions for radio stations, photographs for magazines and newspapers, motion picture films, and retail merchandise. Luxury items of clothing not carried in stock can be quickly secured from the manufacturer far away, pleasing a customer who can afford to pay for such service. Many Purchasing Agents have found it profitable to use air express in these ways.

Restriction on non-essential air cargo may become necessary because the rapidly expanding air lines of the country have been drafted into war service. Over routes covered by steamship-around-the-world tours of another day, they are flying fighting men, materials, and equipment. American Airlines, TWA, and Northeast have been assigned the flying of the North Atlantic; Northwest and Pan American are taking Alaska; Western is covering Canada; Eastern Airlines, South America; and United, the trans-Pacific and "down under." Pan American is to continue its Hawaii flights and add the Caribbean area, the South Atlantic, Africa and on east to the Persian Gulf.

Gigantic cargo planes able to fly the Atlantic between breakfast and dinner, are the recruits for air fleets already streaking over these routes; they are being delivered rapidly by mushroomed aircraft factories.

Planes and Pilots

The expansion of airplane manufacturing plants, as well as the vast personnel training in aviation is an important factor in present unfoldments, one that must exert powerful future influences. Production of planes is approaching the goal set in President Roosevelt's speeches—5,000 a month. Aviation executives say that the 1943 goal of 125,000 planes will be attained.

From the President's speeches we can guess that at least 300,000 pilots will be trained for the military forces; 1,000,000 airplane mechanics. An idea of the meaning of this expansion can be formed by comparing these figures with some older statistics of the Civil Aeronautics authority. In 1940 all the regularly scheduled air lines of the country employed a total of only 2,278 pilots and co-pilots; 5,409 mechanics and ground crewmen. They operated a combined total of 440 planes, about two or three days' present plane production. This trained personnel, together with planes and production capacity, will be a large factor in tomorrow's transport picture.

Probably even more significant is that costs of flying the newer planes are being rapidly reduced to figures not far out of line with present railroad, motor truck,

Photograph by courtesy of the American Air Lines

and steamship revenues. The Industrial Research Division of the Lockheed Aircraft Corporation reports for a new giant plane—war censorship precludes its being named—costs in air cargo operation are 5¢ a ton-mile using the plane as a "locomotive" to pull gliders as the Germans have done in Russia and Africa. Overhead and operating charges according to average air line practice are included. Railroad express rates are now based on an average of 10¢ a ton-mile; less-than-carload rail freight, 4¢; carload freight, 1¢. Truck rates are usually slightly under those of the railroad. Steamship rates are based on a rough average of ½¢ a ton-mile.

These airplane costs may be lowered still further: engineering improvements based upon experience in combat flying are telescoping decades of normal air development into a few war years. Military censorship prohibits a discussion of those improvements.

Speed of delivery is an important added advantage in considering delivery costs. The plane makes deliveries in hours instead of days as does the railroad. A crawling freight vessel requires two months to make the 12,000 mile trip between New York and the Persian Gulf; with time out for repairs, unloading, and loading, only two and half round trips can be made each year. The plane makes a complete round trip to the Persian Gulf in one week!

The sudden drop in costs of plane operation to around 5¢ a ton-mile is especially significant since the average cost of the leading air lines reporting for 1941 was over 50¢ a ton-mile. Cost reduction derives only in part from engineering advances, coming for the most part from the increased pay load, the sheer size, of the great planes. Comparatively static overhead and operating costs are spread over more units of pay load. On a plane with interior cabin space the size of a ten room house, the spread of operating cost is over a very large load.

Government Sponsorship

The large airplane manufacturing plants with their present unlimited Government cooperation and financial backing, have developed research departments that are not only making engineering improvements in the combat performances of their planes but are also looking toward post-war conditions. They are planning and working in many ways to establish the airplane as one of the major forms of transportation; to give it the status of at least an equal in post-war transportation economics.

In considering the immediate future of the giant cargo plane, we must also turn for guidance to the United States Government's rapid development of the merchant marine; to its building, owning, and operating American flag vessels for national defense. Had we had such a large Government-sponsored merchant air fleet when Japan attacked in December of 1941, there might have been no Bataan. Supplies and reinforcements flown to General MacArthur in sufficient quantity, could have enabled him to hold the Philippines. Surely we must always have a powerful merchant air fleet in the face of our recent calamities stemming from its lack. The Government will undoubtedly have to work out a program for subsidizing overseas air freight services on a large scale, especially since air lines are now proving their value in serving the armed forces all over the world.

From the tremendous expansion of aviation production and trained personnel, the drop in costs of flying, the necessity for a powerful merchant air armada, we can expect changes in transportation that may have far reaching effects. The railroad, the steamship, and the motor truck will not be displaced by the cargo plane

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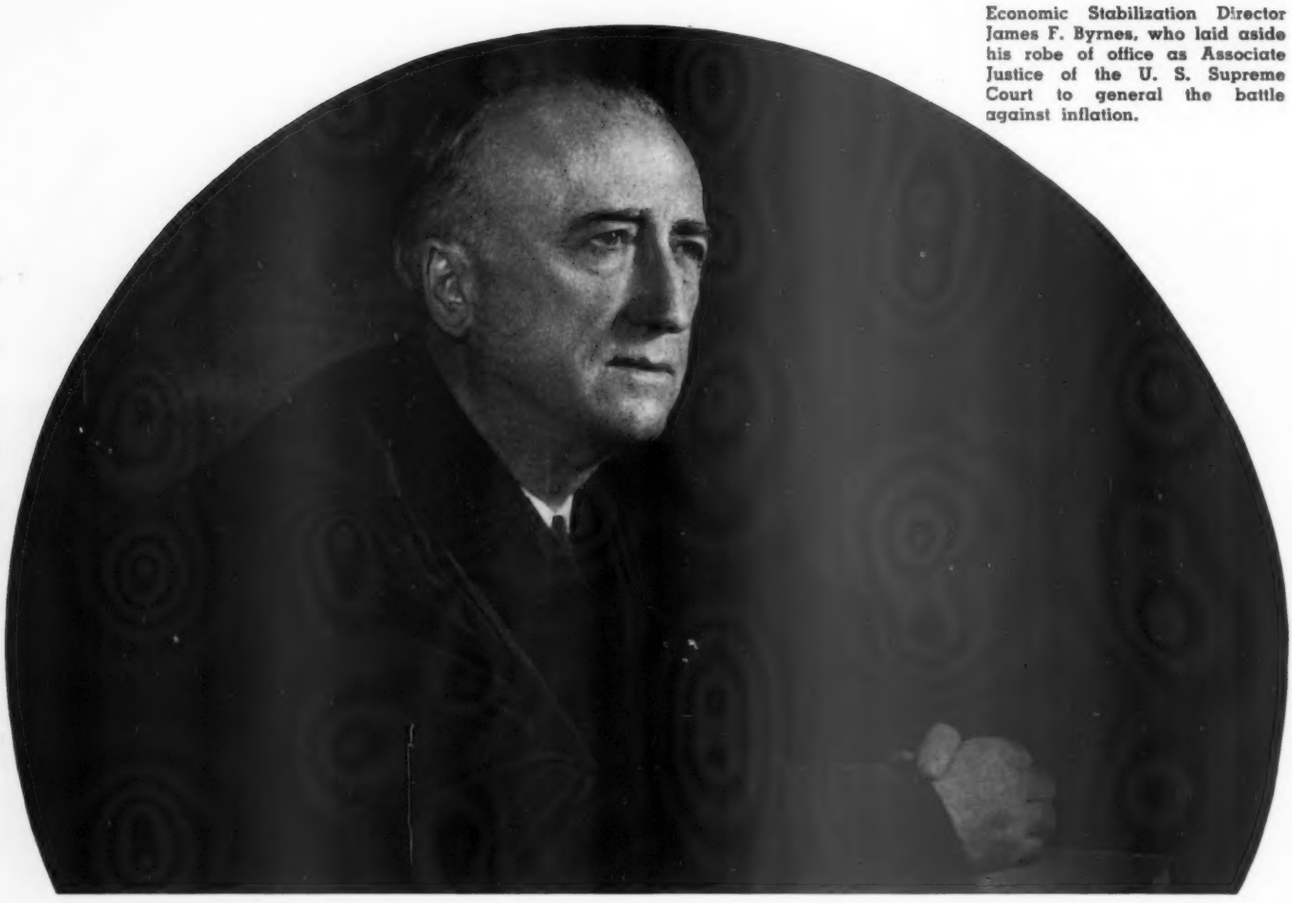


Economic Stabilization Director James F. Byrnes, who laid aside his robe of office as Associate Justice of the U. S. Supreme Court to general the battle against inflation.

SUBSIDY PAYMENTS
Viewed as Necessary
PRICE CONTROL EXPEDIENT

By A. N. WECKSLER

EXPERIENCE in other countries at war and in this country indicates that no single method of control can cope adequately with inflation. Uncontrollable wage and material cost factors inherent in a war economy exert increasing pressure on the price structure, making payment of Government subsidies necessary in some cases.

The Office of Price Administration now maintains that wider use of subsidy payments is necessary at this time as a backstop on inflation. It is pointed out that price control is at a crucial stage where, for the first time, checks are being placed on wages and on farm prices.

Effectiveness of these checks is dependent upon stabilizing the cost of living. If OPA is able to hold down the cost of living, pressure from labor and the farm bloc will subside. If on the other hand, the Price Administration does not hold living costs in line, the tug-of-war between labor, farmers and industry will begin again to set into motion the inflationary spiral.

Our limited experience with a war economy has shown that it is impossible to freeze either prices or wages. As war requirements drain off materials and skilled labor, the costs of producing with materials of lesser grade and with green or unskilled labor are greater, even though material costs and wages are frozen.

The problem of materials can be met through simplification. Higher costs of civilian goods production can be pared down by placing the product on a utility basis. The extent to which simplification and standardization become necessary is dictated by the degree of scarcity of materials and of availability of labor.

On the other hand, wages have a direct relationship

to the cost of living, a fact which has been recognized in Canada, where the price control system establishes a fixed relationship between wage levels and the cost-of-living.

Holding Price Ceilings

As varied factors exert pressure against a price ceiling, it becomes necessary to relieve that pressure. The simplest means, from the viewpoint of administration, would be to lift the ceiling—to allow price increases. On numerous occasions, OPA has resorted to such an expedient.

Difficulty which developed was that the increased price was reflected at various marketing levels in a multiple of the original cost. To ameliorate the inflationary tendency, at least to slow it, OPA attempted to grant individual price ceiling increases—to permit exceptions to individual petitioners.

This latter procedure was at best a process of slowing down the inevitable, and in many cases tended to disrupt the market, with rumors arising as to further price action.

OPA has come to the conclusion that price adjustments must apply to the trade generally, rather than to particular manufacturers or sellers who may be pinched by cost increases.

When pressure develops on a price ceiling, solution may be possible through requiring absorption of the higher cost factors by some other segments in the trade, and without passing the higher cost on to the consumer. Further, trade practices may be modified to reduce some of the cost elements.

These adjustments, however, take time, and if a break in the price ceiling is permitted on a temporary basis, it is difficult, if not impossible, to make the adjustments at a later date and then cut back the price.

A Policy of Expedience

These factors lead OPA officials to regard use of subsidies as serving a double purpose.

Subsidies can be used to compensate for higher cost factors in an industry or in processing of a commodity. These would be a temporary expedient until simplification or standardization can be instituted as a means of bringing about lower cost of output, and would be withdrawn when the industry made the necessary adjustments.

Of more permanent value is the use of subsidies to compensate for one or several higher cost factors directly attributable to the war economy—these to be continued on a more lasting basis. Use of a moderate subsidy at one stage of processing can save the ultimate purchaser substantial amounts of money by eliminating the multiple markup factor inherent in trade practices.

Policy as to use of subsidies will be by Director of Economic Stabilization James F. Byrnes. He has indicated that the subsidy approach to price control must be used sparingly.

As one of the first moves in his post as Economic Stabilization Director, Byrnes requested the Budget Bureau to review all subsidies relating to economic stabilization that are in force, in order to determine what subsidies can be reduced or discontinued, or what alternatives are possible. The Economic Director pointed out that he considers as alternatives the lowering of profit margins, and such economies in production as can be attained through further simplification and standardization of product.

Byrnes' approach is to consider subsidy payments as a necessary expedient under certain circumstances. His request for a review of all current subsidies can be considered as recognition that any profligate use of subsidies by Government would undermine, rather than bolster, price control.

Subsidies and Profits

There are several general viewpoints within the Office of Price Administration regarding subsidies. Payment of a subsidy at one stage of processing or of marketing eliminates the need for regulation and control at other stages. This simplifies the job of price control. However, the danger in relying too heavily on subsidies to eliminate price pressure is that cost increases develop independently at each stage of marketing.

It is also maintaind that before a subsidy is applied at any stage of production, processing or marketing, the trade should be required to absorb as much of increased costs as possible while still obtaining a "reasonable" profit return.

This immediately raises the question as to what constitutes a reasonable profit return. There has been much discussion of using the 1939 profit levels as an index of normalcy, and it is likely that the 1939 yardstick will be used to some extent.

However, it is obvious that individual manufacturers and sellers in each field operate at varying degrees of efficiency, and this raises the problem of what price ceilings will attract the bulk of production, and whether subsidy payments are desirable to keep other producers in the field.

It is generally indicated that in civilian goods fields a certain percentage of producers will be forced out of business through scarcity of materials and shortage of labor. As the volume of goods available for sale diminishes, the gross sales volume for marketers decreases, and these sellers are squeezed between increased selling costs and smaller sales volume.

Maintaining Production

Through various expedients suggested by War Production Board officials—conservation and limitation orders, the Controlled Materials Plan, standardization, and concentration of production—it is planned to permit manufacturers to produce a predetermined volume of goods. This production will be allocated to certain plants on the basis of efficiency and of labor supply. Certain of the producers would be forced to shut down, and in turn certain of the marketers of the products would be forced out of business by the shrinkage in their sales.

OPA officials point to the experience in Canada where, during the process of standardizing some lines of production, it was necessary to apply subsidies. A case in point was the biscuit industry. A subsidy was granted manufacturers to keep them operating. At the same time, the product was simplified, and marketing practices were modified. The subsidy was withdrawn after a period of time, as the profit margins of the industry became adequate.

For Essential Goods Only

The factors that appear in all discussions of subsidy use are the questions as to how many producers should be retained in the field, and how many marketers are necessary for distribution of the resultant product—what price ceilings will attract the bulk of the desired producers to remain in production, and how much of a subsidy will be necessary to keep the remaining producers and marketers in the picture.

It is general policy that subsidies should be applied only to necessities—basic materials, food, clothing,

durable goods, and essential services, and that such subsidies be paid not to benefit the receiver, but to control the prices paid by the consumer.

Initial payment of wartime subsidy was in the raw materials field, where the Government purchases both imported and domestic mined ore at a bonus price and sells at the OPA ceiling price, with the Government absorbing the differential. When Government is the direct buyer, this type of subsidy presents few problems. The Reconstruction Finance Corporation, through its various subsidiary Government corporations, is well equipped to handle this type of transaction, and in fact engaged in such buying and selling practices in the pre-war materials stockpiling program.

A refinement of the subsidy program is the quota system, under which the ceiling price applies to a specified tonnage of ore produced, with a bonus price allowed for over-quota output.

In the field of agriculture, subsidy payments have been an integral part of our farm economy for some time. The machinery of subsidy payments to the farmer is in operation, but there has been opposition from some farm representatives on the extension of the system. These spokesmen claim that it is more desirable to permit a price increase than for the Government to absorb food production cost increases through payment of subsidies.

Subsidies for Transportation

Most direct examples of subsidy payments were those made in connection with the changes in transportation attributable to the war. Transport of oil by rail instead of by tanker represented a large increment in cost to Eastern consumers. The increase was so considerable that there was no question of the oil producers or refiners being able to absorb the cost. The problem was whether the higher price would be passed on to the consumer—with the widespread resultant increase in cost of living—or whether the higher transportation cost was to be absorbed by the Government. Subsidy payment was made to the petroleum shippers compensating them for the exact amount of increase in transportation costs.

Similar step was taken in connection with diversion of coal on the East Coast from barge to barge and rail, or all rail. Increase in ocean-going shipping costs due to the war risk charges was in like fashion underwritten by the Government. The latter represented a slightly less direct form of subsidy, but a subsidy nevertheless.

Subsidies and Wages

One of the most controversial issues is the absorption of higher coal production costs entailed if the work week is extended through payment of overtime at the mines. Question involved is whether a Government subsidy could be applied to absorb an increase in the hourly wage rate, or whether a subsidy should be applied to coal production in the same fashion as it has been used to increase output of non-ferrous metals—payment for over-quota production.

It is indicated by Government economists that a flat increase in the hourly wage rate of miners will not guarantee higher production of coal. On the other hand, a bonus payment for over-quota coal, with the bonus sufficient to guarantee a predetermined overtime wage rate, would result in higher output, it is claimed.

To date, subsidies have been applied to absorb increases in raw materials cost as a means of bringing in marginal production, and such payment has been made only to the high cost producers, or for that percentage of output as is clearly marginal.

Subsidies have been continued in agriculture, but no new use has been made of such payments.

Subsidies have been used to compensate for higher transportation costs.

Presumably, transportation costs and raw material costs have been stabilized. Still not compensated for is the higher cost of green labor, and the overtime wage rates that must be paid as shortage of labor forces payment of overtime.

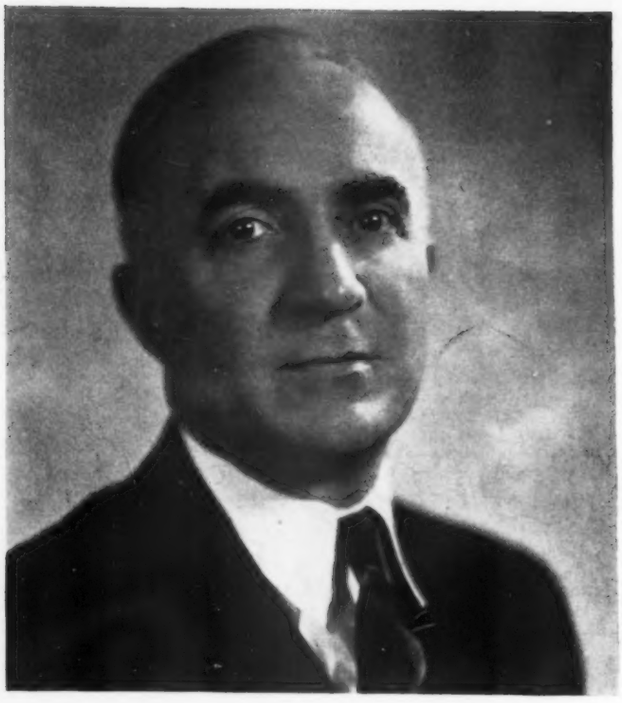
Policy will be to force industry to absorb as much of these higher costs as possible, either by cutting their profit margin or reducing cost factors other than labor, through simplification and standardization of product.

At various stages of this program, it is maintained by Government economists, it will be necessary to apply subsidies—in some cases as a temporary expedient, and in others as a measure for the duration of the war.

OWI Photo

Deputy OPA Administrator Dr. John K. Galbraith, in charge of price control during Leon Henderson's regime, who favors subsidies as a means of keeping consumer prices down.

"I don't know—but she doesn't belong here!"



As Sales Manager of the Crown Zellerbach Corp., San Francisco, Mr. Clark teamed with Purchasing Agent Louis A. Colton to stage the first joint meeting of sales and purchasing executives in Northern California, an idea which is now a regular annual feature in many Purchasing Agents' Associations.

Standardization of WPB forms, and split-second planning of printing and distribution, combine to speed and facilitate the biggest industrial control job in history

By ROBERT C. CLARK

Special Consultant
Administrative Division
War Production Board

SIXTY-ONE TONS

The printing of WPB orders and forms has an importance without parallel. It represents almost the entire action of the Board in furthering the war effort. This printing is to the Board what guns and ammunition are to the Army, airplanes to the air service, and war ships to the Navy. Printing is the actual instrument of the Board to accomplish action in the conversion, conservation, and curtailment of industry, and the harnessing of all of this result to the production and procurement for war.

Of course we have a tremendous volume of material that goes through our shop that we call "side line printing" such as posters, stickers, booklets, folders, manuals, publications, directories, etc. for purposes of propaganda, information, and what we call "cheer leader stuff." The latter is represented by material for conservation, labor-employer relations, drives, benefits, etc. We always have this type of printing with us, and there is not much difference between present production than is usual for almost everything on the same large scale.

Largest Volume of Rush Printing

However, there is a vast different in the problem connected with orders and implementing forms. We believe that our volume of orders and forms represents the most vital, urgent, and largest volume collection of continuous job printing emanating from one large source the world has ever seen. Our entire economy is being controlled by Limitation, Allocation, Priority, and Suspension Orders. These orders are increasing in quantity as we dig deeper and deeper into all materials and end products in the job of conserving, converting, and curtailing for the war effort. Practically every order requires reporting, appeal, and authorization forms. Most orders require three to five public use forms, and at least as many internal and processing forms.

The Congress has set up under its exclusive control the printing and binding facilities for the entire Government. The Government Printing Office is the largest and best equipped printing establishment the world has ever seen. For the last ten years it has been headed by a Public Printer who was outstanding in the commercial field before taking the job, and since that time has done a magnificent job in organizing the personnel to match the excellence of the equipment.

Proper Place For Multilith

The Public Printer permits the various government agencies to operate spirit and gelatin duplicator machines, mimeographs, and multiliths. The reason that he permits the agencies to use these small duplicating machines is that it is the only possible way for the agencies to secure one or two hour service on small rush bulletins and forms. He could, at his discretion, and in accordance with the law, pick up all of this duplicating equipment and force the agencies to use the facilities provided by the Government Printing Office.

Many of the agencies, and particularly the war agencies, confuse this special concession with the rights of the agencies. One of the branches of a war agency in New York even went so far as to interpret it as the right of the agency to contract for a large job to be done by lithography, claiming that this was not a printing operation. I understand that he settled the consequent entanglement in which he became involved by paying for the job himself, and agreeing in writing that he would never step over the mark again.

The War Production Board got itself into an involved situation early this Spring by confusing speed on small

James G. Robinson
Administrative Officer
War Production Board

Mr. Robinson introduced and developed the "boxing" principle of form design as a means of conserving space and and making forms easier to use. The system originated in Great Britain.

orders with speed on tremendous orders, and a volume the like of which has never been seen. When I first came here, our little multilith machines were trying to print M-126, which was an Iron and Steel order going out in six pages to 175,000 manufacturers. This was being run one up at the average rate of about 2,000 per hour, and needless to say, it tied up practically all of the multilith equipment that OEM had. At the same time there were hundreds of orders yet to be printed.

The Congress had generously provided fifty or sixty multilith machines and even two or three Webbendorfers for OEM use, but you can well imagine that this was merely a drop in the bucket to what was required.

The net result was that the originating branches couldn't even get copies of their own orders, and copies for WPB field offices were simply non-existent. Printers all over the country were getting forms and orders and reprinting and selling them for 25 cents each. I

# of MAIL a DAY

even heard of one sale of a certain form which brought $1 each. You can imagine the tremendous outcry that came up from industry when it was forced to pay for the privilege of filling out long reporting forms.

In June the Government Printing Office organized a full mass production schedule for orders and forms. They originally set up for one million impressions per night. This has already gone to two million impressions per night, and will probably double and triple this figure before another twelve months has passed. Orders that are signed at 4 o'clock today will be distributed to San Francisco regional office employees the morning of the second day.

Assembly Line Mass Production

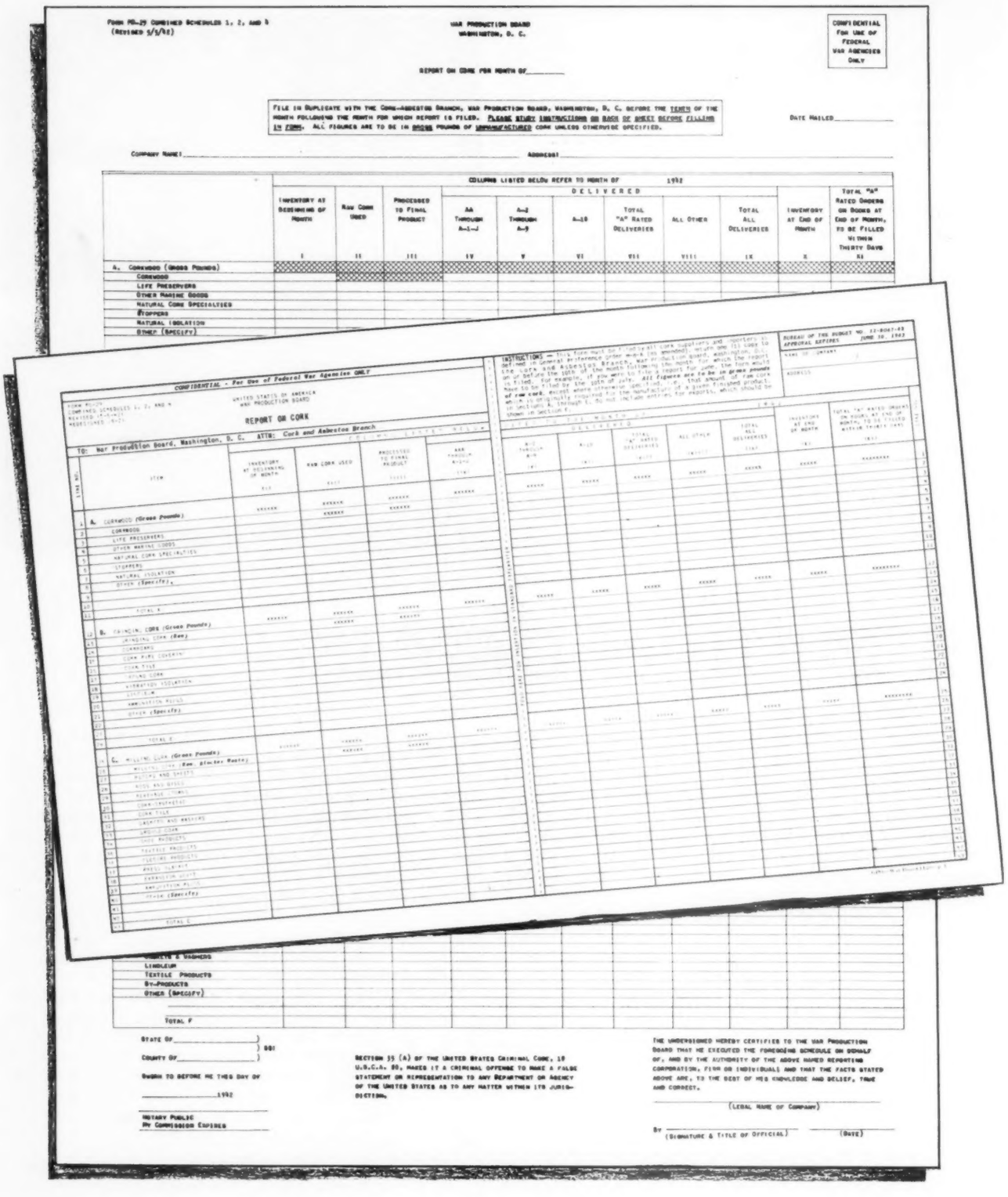
In order to accomplish running sixteen up, thirty-two up, and sixty-four up on high-speed offset presses, it is necessary to have complete standardization as to sizes, colors, quality and weight of paper, etc. Our Printing Planning Unit, under Mr. Kramer, with the cooperation of the Government Printing Office and the editors of the Federal Register, do a complete job of laying out and balancing the various uneven quantities of impressions. It is a split-second operation from the time we start sending over copy late in the morning until the dead-line of 5 p. m. is reached. The entire distribution is standardized, and is quite detailed and intricate as you can imagine. It covers all of the field offices, all of the various vital spots in the Board, supplies our Correspondence and Information Unit, the mailing list location, and our wholesale distribution warehouse. The distribution is entirely standardized except for the quantities put in the warehouse and sent to the mailing list location.

The net result of this mass production of rush printing of orders and forms is that the Government Printing Office has completely met the situation. Instead of our field men having to rely on news services for information, these news services complain that their customers get information from our men faster than they can do the job. We even have complaints that there have been leaks from field men on orders not yet officially registered, which enabled a small country weekly to "scoop" the mighty Washington Correspondents. Although we realize this is serious, it provided us with a little humor, as contrasted with the old situation when we were six or eight weeks behind in our printing of orders and forms.

Our difficulties now regarding printing are concentrated on what we call tailor made jobs. It seems almost impossible to make our people understand the difference between tailor made jobs and the necessary time that they must take as compared to our overnight rush printing jobs, on an assembly line bases. They can not understand that ten days is an extremely fast execution of a tailor made job as compared to one night for a job included in the assembly line.

Tailor Made Job Problem

They seem to understand easily enough that it may take months for them to secure a custom built automobile as opposed to getting immediate delivery of a stock automobile; they can understand that it takes two or three weeks to have a suit of clothes tailored to order as opposed to pulling one "off the rack" in a men's furnishing store, but they simply cannot understand the specification writing and all the special steps that must be taken in order to make up a tailor made printing job. Whether this education can ever be completed is extremely doubtful.



FORM PD-29 COMBINED SCHEDULES 1, 2, AND 3 (REVISED 5/5/42)

WAR PRODUCTION BOARD WASHINGTON, D. C.

CONFIDENTIAL FOR USE OF FEDERAL WAR AGENCIES ONLY

REPORT ON CORK FOR MONTH OF_____

FILE IN DUPLICATE WITH THE CORK-ASBESTOS BRANCH, WAR PRODUCTION BOARD, WASHINGTON, D. C. BEFORE THE TENTH OF THE MONTH FOLLOWING THE MONTH FOR WHICH REPORT IS FILED. PLEASE STUDY INSTRUCTIONS ON BACK OF SHEET BEFORE FILLING IN FORM. ALL FIGURES ARE TO BE IN GROSS POUNDS OF UNMANUFACTURED CORK UNLESS OTHERWISE SPECIFIED.

DATE MAILED_____

COMPANY NAME:_____ ADDRESS:_____

COLUMNS LISTED BELOW REFER TO MONTH OF 1942

	INVENTORY AT BEGINNING OF MONTH	RAW CORK USED	PROCESSED TO FINAL PRODUCT	DELIVERED: AA THROUGH A-1-J	DELIVERED: A-2 THROUGH A-9	DELIVERED: A-10	DELIVERED: TOTAL "A" RATED DELIVERIES	DELIVERED: ALL OTHER	DELIVERED: TOTAL ALL DELIVERIES	INVENTORY AT END OF MONTH	TOTAL "A" RATED ORDERS ON BOOKS AT END OF MONTH, TO BE FILLED WITHIN THIRTY DAYS
	I	II	III	IV	V	VI	VII	VIII	IX	X	XI
A. CORKWOOD (GROSS POUNDS)											
CORKWOOD											
LIFE PRESERVERS											
OTHER MARINE GOODS											
NATURAL CORK SPECIALTIES											
STOPPERS											
NATURAL ISOLATION											
OTHER (SPECIFY)											

CONFIDENTIAL - For Use of Federal War Agencies ONLY

UNITED STATES OF AMERICA WAR PRODUCTION BOARD

REPORT OF CORK

TO: War Production Board, Washington, D. C. ATTN: Cork and Asbestos Branch

INSTRUCTIONS — This form must be filled out by all cork suppliers and reporters as defined in General Preference Order M-9-a (as amended), which you will find in the cork and Asbestos Branch, War Production Board, Washington, D. C. The cork and Asbestos Branch, if you were to file a report for June, the form would be filed on or before the 10th of July. All figures are to be in gross pounds of raw cork, except where otherwise specified, i.e. the amount of raw cork which is originally required for the manufacture of a given finished product, shown in Section F.

BUREAU OF THE BUDGET NO. 12-R067-42 APPROVAL EXPIRES JUNE 30, 1942

NAME OF COMPANY

ADDRESS

COLUMNS LISTED BELOW REFER TO MONTH OF 1942

LINE NO.	ITEM	INVENTORY AT BEGINNING OF MONTH	RAW CORK USED	PROCESSED TO FINAL PRODUCT	AA THROUGH A-1-J	A-2 THROUGH A-9	A-10	TOTAL "A" RATED DELIVERIES	ALL OTHER	TOTAL ALL DELIVERIES	INVENTORY AT END OF MONTH	TOTAL "A" RATED ORDERS ON BOOKS AT END OF MONTH, TO BE FILLED WITHIN THIRTY DAYS
		I	II	III	IV	V	VI	VII	VIII	IX	X	XI
1	A. CORKWOOD (Gross Pounds)	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
2	CORKWOOD		*****	*****								
3	LIFE PRESERVERS											
4	OTHER MARINE GOODS											
5	NATURAL CORK SPECIALTIES											
6	STOPPERS											
7	NATURAL ISOLATION											
8	OTHER (Specify)											
9												
10	TOTAL A	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
11	B. GRANULATED CORK (Gross Pounds)		*****	*****								
12	GRINDING CORK (Bag)											
13	CHIPBOARD											
14	CORK PIPE COVERING											
15	CORK TILE											
16	MOLDED CORK											
17	VIBRATION ISOLATION											
18	LINOLEUM											
19	AMMUNITION PLUGS											
20	OTHER (Specify)											
21												
22	TOTAL B	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
23	C. MILLING CORK (Gross Pounds)		*****	*****								
24	MILLING (Exp. Grinder Route)											
25	FLOORS AND SHEETS											
26	RODS AND DISCS											
27	GASKETS (Sheet)											
28	CORK-RUBBER											
29	CORK TILE											
30	LINOLEUM AND BACKING											
31	MOLDED CORK											
32	CORK PRODUCTS											
33	TEXTILE PRODUCTS											
34	FLOOR PRODUCTS											
35	APPEL SLEEVES											
36	EXPANSION JOINTS											
37	AMMUNITION PLUGS											
38	OTHER (Specify)											
39												
40	TOTAL C	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****

WASHERS & GASKETS
LINOLEUM
TEXTILE PRODUCTS
BY-PRODUCTS
OTHER (SPECIFY)

TOTAL F

STATE OF_____) SS:
COUNTY OF_____)

SWORN TO BEFORE ME THIS DAY OF
_____1942

NOTARY PUBLIC
MY COMMISSION EXPIRES_____

SECTION 35 (A) OF THE UNITED STATES CRIMINAL CODE, 18 U.S.C.A. 80, MAKES IT A CRIMINAL OFFENSE TO MAKE A FALSE STATEMENT OR REPRESENTATION TO ANY DEPARTMENT OR AGENCY OF THE UNITED STATES AS TO ANY MATTER WITHIN ITS JURISDICTION.

THE UNDERSIGNED HEREBY CERTIFIES TO THE WAR PRODUCTION BOARD THAT HE EXECUTED THE FOREGOING SCHEDULE ON BEHALF OF, AND BY THE AUTHORITY OF THE ABOVE NAMED REPORTING CORPORATION, FIRM OR INDIVIDUAL) AND THAT THE FACTS STATED ABOVE ARE, TO THE BEST OF HIS KNOWLEDGE AND BELIEF, TRUE AND CORRECT.

(LEGAL NAME OF COMPANY)

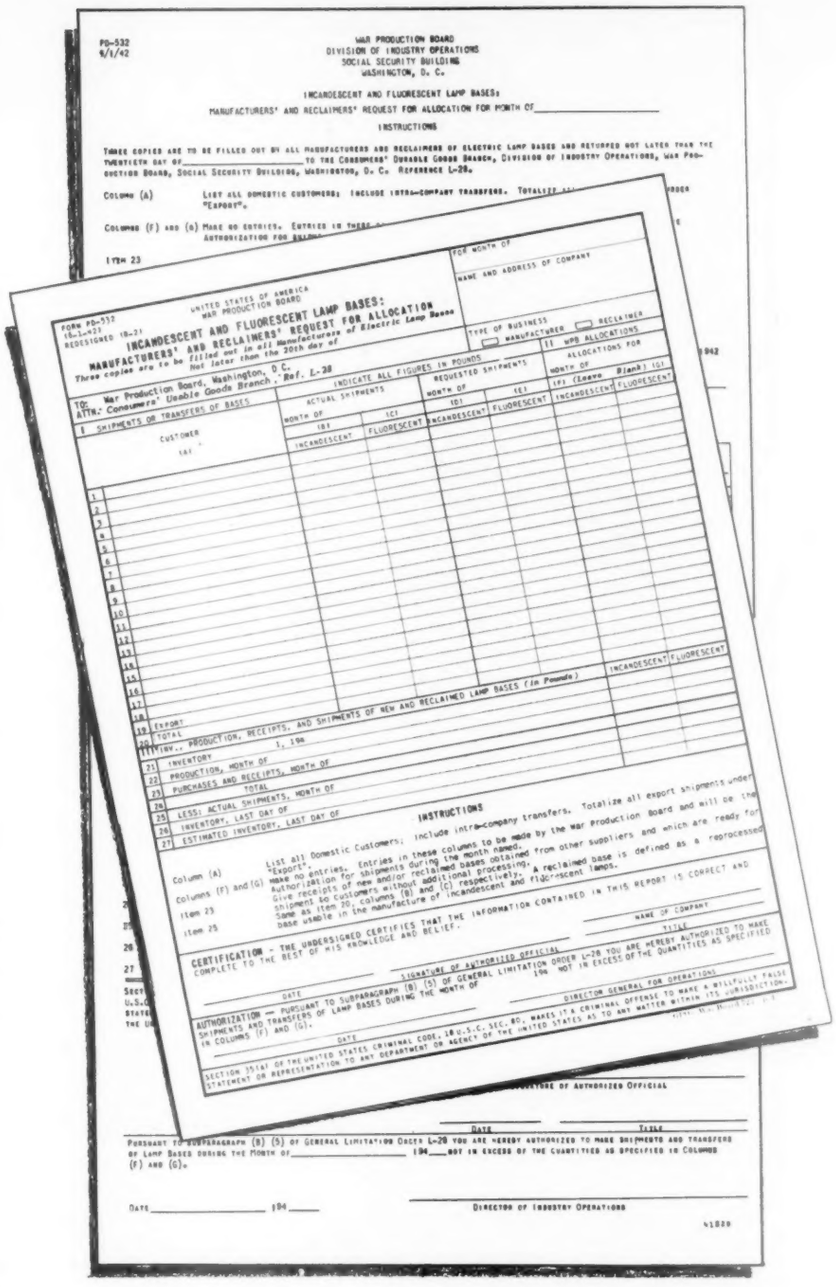
By _____ (SIGNATURE & TITLE OF OFFICIAL) _____ (DATE)

Blanket size forms like the 16 x 21 PD-29 have been redrafted to a size which prints economically, fits a standard typewriter carriage with a single fold, and is spaced for typewriter entries.

However, I can say that I have operated in every section of the United States, and I am familiar with almost every printing operation in the country, and the job being done by the Government Printing Office on tailor made jobs is the fastest, most adequate, and most remarkable that has ever been done in this country. I am perfectly willing to debate this question any time and with anyone.

Obviously, it was necessary to standardize, (at least in size) all public use forms. In other words, it has been necessary to standardize all of our forms to size 8½ x 11 and multiples for this assembly line operation. The attempt is to make forms so compact that they will all be 8½ x 11, and if it is absolutely necessary to have a size larger, we even "blow them up" a bit so that they will be double size either in length or width. This is

Rearrangement of data brought the awkward PD-532 down to standard letter size without sacrificing a single item of information. Varityper headings are clear and easily distinguishable from the typed report figures.



PD-532
6/1/42

WAR PRODUCTION BOARD
DIVISION OF INDUSTRY OPERATIONS
SOCIAL SECURITY BUILDING
WASHINGTON, D. C.

INCANDESCENT AND FLUORESCENT LAMP BASES:
MANUFACTURERS' AND RECLAIMERS' REQUEST FOR ALLOCATION FOR MONTH OF_____

INSTRUCTIONS

THREE COPIES ARE TO BE FILLED OUT BY ALL MANUFACTURERS AND RECLAIMERS OF ELECTRIC LAMP BASES AND RETURNED NOT LATER THAN THE TWENTIETH DAY OF_____ TO THE CONSUMERS' DURABLE GOODS BRANCH, DIVISION OF INDUSTRY OPERATIONS, WAR PRODUCTION BOARD, SOCIAL SECURITY BUILDING, WASHINGTON, D. C. REFERENCE L-28a.

COLUMN (A) LIST ALL DOMESTIC CUSTOMERS; INCLUDE INTRA-COMPANY TRANSFERS. TOTALIZE ALL ... "EXPORT".

COLUMNS (F) AND (G) MAKE NO ENTRIES. ENTRIES IN THESE ... AUTHORIZATION FOR SHIPMENTS ...

ITEM 23

FORM PD-532
(6-1-42)
REDESIGNED (8-21)

UNITED STATES OF AMERICA
WAR PRODUCTION BOARD

INCANDESCENT AND FLUORESCENT LAMP BASES: MANUFACTURERS' AND RECLAIMERS' REQUEST FOR ALLOCATION

Three copies are to be filled out in all manufactures of Electric Lamp Bases
Not later than the 20th day of

FOR MONTH OF

NAME AND ADDRESS OF COMPANY

TYPE OF BUSINESS ☐ MANUFACTURER ☐ RECLAIMER

II WPB ALLOCATIONS

TO: War Production Board, Washington, D.C.
ATTN.: Consumers' Usable Goods Branch / *Ref. L-28*

INDICATE ALL FIGURES IN POUNDS

I SHIPMENTS OR TRANSFERS OF BASES	ACTUAL SHIPMENTS MONTH OF		REQUESTED SHIPMENTS MONTH OF		ALLOCATIONS FOR MONTH OF	
CUSTOMER (A)	(B) INCANDESCENT	(C) FLUORESCENT	(D) INCANDESCENT	(E) FLUORESCENT	(F) (Leave Blank) INCANDESCENT	(G) (Leave Blank) FLUORESCENT
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19 EXPORT						
20 TOTAL						

II INV., PRODUCTION, RECEIPTS, AND SHIPMENTS OF NEW AND RECLAIMED LAMP BASES (*In Pounds*)	INCANDESCENT	FLUORESCENT
21 INVENTORY 1, 194		
22 PRODUCTION, MONTH OF		
23 PURCHASES AND RECEIPTS, MONTH OF		
24 TOTAL		
25 LESS: ACTUAL SHIPMENTS, MONTH OF		
26 INVENTORY, LAST DAY OF		
27 ESTIMATED INVENTORY, LAST DAY OF		

INSTRUCTIONS

Column (A) List all Domestic Customers; include intra-company transfers. Totalize all export shipments under "Export".
Columns (F) and (G) make no entries. Entries in these columns to be made by the War Production Board and will be the Authorization for shipments during the month named.
Item 23 Give receipts of new and/or reclaimed bases obtained from other suppliers and which are ready for shipment to customers without additional processing.
Item 25 Same as item 20, columns (B) and (C) respectively. A reclaimed base is defined as a reprocessed base usable in the manufacture of incandescent and fluorescent lamps.

CERTIFICATION - THE UNDERSIGNED CERTIFIES THAT THE INFORMATION CONTAINED IN THIS REPORT IS CORRECT AND COMPLETE TO THE BEST OF HIS KNOWLEDGE AND BELIEF.

NAME OF COMPANY

DATE SIGNATURE OF AUTHORIZED OFFICIAL TITLE

AUTHORIZATION — PURSUANT TO SUBPARAGRAPH (B) (5) OF GENERAL LIMITATION ORDER L-28 YOU ARE HEREBY AUTHORIZED TO MAKE SHIPMENTS AND TRANSFERS OF LAMP BASES DURING THE MONTH OF 194 NOT IN EXCESS OF THE QUANTITIES AS SPECIFIED IN COLUMNS (F) AND (G).

DATE DIRECTOR GENERAL FOR OPERATIONS

SECTION 35(A) OF THE UNITED STATES CRIMINAL CODE, 18 U.S.C. SEC. 80, MAKES IT A CRIMINAL OFFENSE TO MAKE A WILLFULLY FALSE STATEMENT OR REPRESENTATION TO ANY DEPARTMENT OR AGENCY OF THE UNITED STATES AS TO ANY MATTER WITHIN ITS JURISDICTION.

SIGNATURE OF AUTHORIZED OFFICIAL

DATE TITLE

PURSUANT TO SUBPARAGRAPH (B) (5) OF GENERAL LIMITATION ORDER L-28 YOU ARE HEREBY AUTHORIZED TO MAKE SHIPMENTS AND TRANSFERS OF LAMP BASES DURING THE MONTH OF_____ 194___ NOT IN EXCESS OF THE QUANTITIES AS SPECIFIED IN COLUMNS (F) AND (G).

DATE_____ 194___ DIRECTOR OF INDUSTRY OPERATIONS

41820

the only way that we can fit them into the assembly line, and the extra size is justified by the economy of the operation and the speed required in getting them out. Our unit cost is, of course, less than one half what it was in running one or two up on small and slow office machines such as the multilith and Webbendorfer.

Probably the biggest consideration, however, in standardizing our forms was the tremendous "roar" from industry who used these forms, who pointed out that extended carriage typewriters were now unobtainable, and that practically all of our forms were "bed blankets." They furthermore pointed out that every form was a separate puzzle with no standardization or uniformity as to where they should sign their name, the filing data, the title, the return address, the penalty recitation, and all of the other things that could be easily standardized. A similar difficulty was encountered in analyzing, processing and filing.

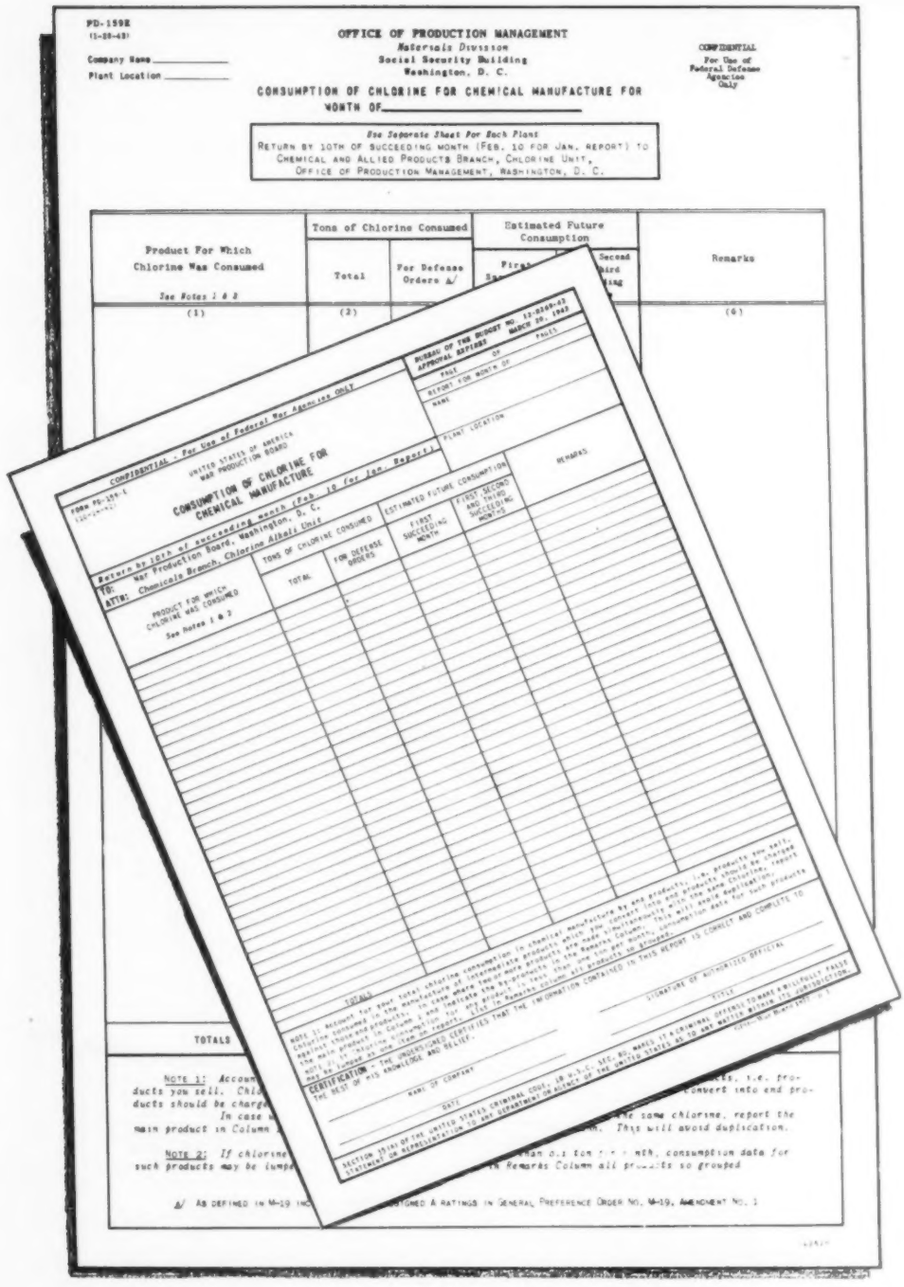
Protests Create Manual

As a result of literally thousands of protests that came in to the Chairman's office, and dozens of delegations to Washington, a joint committee comprised of representatives from the Government Printing Office, OEM, and WPB sat down and wrote out standardized principles which were enbodied in a manual which is now the law of the War Production Board as far as the design of forms is concerned. Any exceptions must be made with the consent of the chief of our section and the consent of the Public Printer. We understand from the Lubin Committee that 90% of our forms are in the single standard letter size. They are designed to fit into a standard typewriter, and they all have the same standardized positions for recurring data. We have built our section so that we can, and do, design and produce approximately fifty forms per day.

It was necessary to recruit most of our forms designing personnel from the women's colleges having outstanding courses in architectural and mechanical drawing. The recruits came from such schools as Wellesley, Vassar, Mt. Holyoke, Bryn Mawr, Smith, etc. We found it impossible to get men with the same qualifications, and these girls are working out very satisfactorily. It was necessary for them to have had training in economics and business administration courses as well as mechanical drawing in order for them to be able to interpret the wishes of the various economists and industrialists who have charge of the creation of the forms. We are digging deeper and deeper into our industrial structure, and the only answer is more orders and more forms, and it is my opinion that we will have to turn out 100 forms per day in the not-too-distant future.

Value of Varityper Machine

Of course, we have a few draftsmen who do nothing but draw lines, but in general our form designers and even our varityper operators do a lot of drafting. The reason for using varitypers is to condense headings and to differentiate the reporting of industry on pica size



PD-159E
(1-28-43)

OFFICE OF PRODUCTION MANAGEMENT
Materials Division
Social Security Building
Washington, D. C.

Company Name _____
Plant Location _____

CONFIDENTIAL
For Use of Federal Defense Agencies Only

CONSUMPTION OF CHLORINE FOR CHEMICAL MANUFACTURE FOR MONTH OF _____

Use Separate Sheet For Each Plant

RETURN BY 10TH OF SUCCEEDING MONTH (FEB. 10 FOR JAN. REPORT) TO CHEMICAL AND ALLIED PRODUCTS BRANCH, CHLORINE UNIT, OFFICE OF PRODUCTION MANAGEMENT, WASHINGTON, D. C.

Product For Which Chlorine Was Consumed *See Notes 1 & 2*	Tons of Chlorine Consumed		Estimated Future Consumption		Remarks
	Total	For Defense Orders △/	First Succeeding Month	Second and Third Succeeding Months	
(1)	(2)				(6)
TOTALS					

NOTE 1: Account for your total chlorine consumption in chemical manufacture by end products, i.e. products you sell, regardless of the number of intermediate products which you make in converting raw materials into end products. Chlorine consumed in the manufacture of two or more products which you make simultaneously should be charged to the main product in Column 1, and those products in the Remarks Column. Chlorine consumed in the manufacture of by-products which will come and go with the production of the main product should be charged to the main product in Column 1, and those by-products in the Remarks Column. This will avoid duplication. Do not include in Column 1 any chlorine that you may purchase from other producers. Such consumption data for such products may be included in Column 1 by the producer.

NOTE 2: If chlorine is consumed in the manufacture of two or more products which you make simultaneously, and which are produced in fixed proportions, consumption data for such products may be lumped in Remarks Column all products so grouped.

△/ AS DEFINED IN M-19 [illegible] ASSIGNED A RATINGS IN GENERAL PREFERENCE ORDER NO. M-19, AMENDMENT NO. 1

CONFIDENTIAL - For Use of Federal War Agencies Only

CONSUMPTION OF CHLORINE FOR CHEMICAL MANUFACTURE

Return by 10th of succeeding month (Feb. 10 for Jan. Report)
TO: War Production Board, Washington, D. C.
ATTN: Chemicals Branch, Chlorine Alkali Unit

BUREAU OF THE BUDGET NO. 51-0260-02 APPROVAL EXPIRES MARCH 30, 1943

PAGE _____ OF _____ PAGES

REPORT FOR MONTH OF _____

NAME _____

PLANT LOCATION _____

PRODUCT FOR WHICH CHLORINE WAS CONSUMED See Notes 1 & 2	TONS OF CHLORINE CONSUMED: TOTAL	TONS OF CHLORINE CONSUMED: FOR DEFENSE ORDERS	ESTIMATED FUTURE CONSUMPTION: FIRST SUCCEEDING MONTH	ESTIMATED FUTURE CONSUMPTION: FIRST, SECOND AND THIRD SUCCEEDING MONTHS	REMARKS

TOTALS

NOTE 1: Account for your total chlorine consumption in chemical manufacture by end products, i.e. products you sell, regardless of the number of intermediate products which you make in converting raw materials into end products. Chlorine consumed in the manufacture of two or more products which you make simultaneously should be charged to the main product in Column 1, and those products in the Remarks Column. Chlorine consumed in the manufacture of by-products which will come and go with the production of the main product should be charged to the main product in Column 1, and those by-products in the Remarks Column. This will avoid duplication. Do not include in Column 1 any chlorine that you may purchase from other producers. Such consumption data for such products may be included in Column 1 by the producer.

NOTE 2: If chlorine is consumed in the manufacture of two or more products which you make simultaneously, and which are produced in fixed proportions, consumption data for such products may be lumped in Remarks Column all products so grouped

CERTIFICATION - I, THE UNDERSIGNED, CERTIFY THAT THE INFORMATION CONTAINED IN THIS REPORT IS CORRECT AND COMPLETE TO THE BEST OF MY KNOWLEDGE AND BELIEF.

NAME OF COMPANY _____ SIGNATURE OF AUTHORIZED OFFICIAL _____

DATE _____ TITLE _____

SECTION 35(a) OF THE UNITED STATES CRIMINAL CODE, 18 U.S.C. SEC. 80, MAKES IT A CRIMINAL OFFENSE TO MAKE A WILLFULLY FALSE STATEMENT OR REPRESENTATION TO ANY DEPARTMENT OR AGENCY OF THE UNITED STATES AS TO ANY MATTER WITHIN ITS JURISDICTION.

The original PD-159E was oversize in both sheet width and typing width. The revised form saves 50% of paper and is more usable. Note standard position of headings in all new forms as compared with former miscellaneous arrangement which increased the difficulty of entry and analysis.

typewriter from the report form itself. The varityper does a very high class job, particularly for offset reproduction. In the example shown herewith, the headings and type matter are done on the varityper. It is a much more professional job that could be done on a typewriter.

These examples also show how the revised forms have been designed for use with a standard typewriter. Many of the old forms were too large. The limit of width to go into a typewriter carriage is 11 inches, and 9 inches centered for actual typing space. On many of the forms, the outside columns were outside of the typing limit and could not be filled in at the same operation. Also, they did not have proper line spacing. Incidentally, this is a common fault in nearly all government forms. Even the Civil Service application form is measured in 10ths. It is impossible to hit the same spot on the copy because you have to release the pressure spring on a typewriter in order to center, and your carbon slips. If this were measured in 1/6th of an inch, which is the typewriter spacing instead of 1/10th of an inch, you wouldn't have any trouble at all.

Just as the varityper makes more readable type than an ordinary typewriter, so does the linotype machine make a much easier to read and much more compact type than the varityper. On many of our new forms we use a combination of linotype and varitype. Whenever we have a great many instructions, or a large amount of text matter, we do some split-second timing and rush this over to the Government Printing Office, and they set it up in type. We have to do some very close measuring to have these blocks of type fit into the available space. In the matter of timing, the Government Printing Office, with the cooperation of our Forms Analysts and Design Unit headed by Mr. Rouse, and the Printing Planning Unit headed by Mr. Kramer, has done a really magnificent job.

For example, on PD-40a "Aluminum Quarterly Report", this form reached the Forms Analysis and Design Unit at 10 a. m. Friday morning, and was being mailed out to 3,000 respondents Saturday noon. The entire back sheet is absolutely covered with readable type set up at the Government Printing Office, whereas the rest of the form was drafted and varityped.

The Ideal Form

Of course, the ideal form is one that is set up entirely in type. An example of this is the Dried Fruit Forms of the PD-625 series. There were some sixteen of these Dried Fruit forms, and the mechanics for handling them were quite interesting. We sent over a draft of the form, and it was all set up in type, and horizontal ruling. The headings are all the same, but the titles change, and also the detail on the horizontal lines. The only way that you can handle the vertical lines on an offset job from a practical angle is by waxed lines,

and this is very slow and very expensive. You have the further difficulty that a printer's rule is based on 72 points to the inch as against pica typewriter which is 10 characters to the inch. For these two reasons the only possible way to handle a job of this kind is to make reproducible proof and send it over to our shop to draw the vertical lines on a basis of 10 characters to the inch. The results from this process have been highly satisfactory.

Basic Principles of Design

In spite of all of our standardization, there necessarily has to be tremendous detail which covers the entire economy of our Nation, and there is no fast way to design a good form. A few basic principles applicable to all forms should be observed.

It is always preferable to design your forms in double size (when you have to go to a larger size) lengthwise. This is the regular fan fold style, and enables you to keep the form right in the typewriter to the bitter end. We are going to go more and more to this type of form rather than to the side fold where you have to do a lot of awkward folding and changing in the typewriter. Your battle is always for more horizontal space. In other words, you will have one item where you want twenty or thirty columns. In order to fill it out, and also to process it, you want it all in one line, and that really is the only legitimate excuse for having the fold sidewise. Of course, it is absolutely necessary to keep your forms all in one piece. This is true because of the distribution factor. We already have ten thousand items in our warehouse, and it would make an almost impossible job from a stockkeeping angle if we get our forms into a lot of different pieces. The respondents located a long way from Washington would invariably have two copies of page one and none of page two. This is the reason why we go into the booklet type of construction. Several forms are now being produced with the pages stuck together in the middle. They are easily pulled apart so that the respondent can separate them if he wants to make separate copies. It is also easy to cut them in half. There have been quite a few suggestions that we should use light weight paper and only one side of the sheet. This sounds fine, but it never would work because whenever you get more than one piece of paper, you are in trouble all over the country because of the distribution problem.

Biggest Form of All

We believe PD-25a, which covers the entire Production Requirements Plan, to be the largest form in the country. From a mechanical angle this is a magnificent piece of work. It was all done on one piece of paper and perforated on the press. Doing the job in this way saved picking up and collating 11½ million pieces of paper. All the respondent does is to tear the perforations which have held the form together for their convenience, and it is a very easy form to handle. There is no possibility of the sheets being in the wrong place. Industry can, at its option, leave the side perforations for convenience in handling the carbon, and also in keeping the proper place. It requires two typings, but it is supposed to last industry for three months. We are very proud of this new form in every way. Needless to say, it fits the typewriter, and the spacing is proper, both for line spacing and for pica size typewriter characters.

Standardization of Internal Forms

The executive staff of the War Production Board is largely made up of high-powered industrialists from all over the country. They have been picked as carefully

Processing PRP Applications

Forms are the weapons and ammunition of the greatest statistical and control campaign of all time. In processing fourth quarter PRP applications, more than 1300 people were employed in three shifts on the clerical work alone. Good form design is an important factor at the manufacturer's plant and at WPB headquarters in Washington.

as possible as being the outstanding men in industry. They represent the peculiar type of rugged individualist that has made up America. In general they dominated their own plants, and frequently the entire industry.

All of them brought their own forms with them along with their own ways of doing business. As a result, we have literally hundreds of different forms for identical purposes. We have been given the power, and are doing the job of standardization, and every time we standardize a form, we eliminate anywhere from 50 to 200 similar use forms. This loose leaf book of standardized forms is designed to cover all common use forms to be used in the Board. It includes, of course, necessary forms from Civil Service, and the Comptroller General, the Treasury, and other forms which have been authorized by the Congress. It is designed to set a branch chief up in business so that all he has to do is to turn to its multiple index and find what he wishes to do on an ordinary procedure job. The index is made up functionally, and also alphabetically so that it is very easy to find anything that could possibly be desired. This work will never be finished, and is going on every day. Mr. Keefer is the head of this unit, and I believe that his list shows eliminated forms running into the thousands.

200 Varieties of the Same Form

To give a simple example of the type of thing that Mr. Keefer has done, we found about 200 different kinds of transmittal slips around the Board. Some of the industrialists called them "Action Slips", others "Direction Slips", and still others "Routing Slips". They all covered the same purpose, and Mr. Keefer has combined them into one form. His job requires a lot of selling, and a lot of meetings, but he is definitely making progress. Of course, in adopting a single form to fit a hundred different branches, it necessarily has to be a model for correct procedure so that our general procedures are improving because of this work.

Distribution Planning Unit

We have just recently been given control over the entire distribution of all printed matter. This means the cataloging and coding of all lists, and the adding and deleting of all names and perfecting the mailing list plan.

It means the planning of the proper sized envelope, and seeing that the envelopes are addressed, stuffed, and mailed. It involves literally thousands of lists, but it is necessary to control distribution to see that it does not run away from us.

We controlled the distribution of PD-25a in the fourth quarter, and reduced the quantity about 25%, and at the same time received no complaints from any part of the country that they could not receive a copy of the form. For the third quarter mailing we produced 33⅓% more forms, but didn't cover the country with any degree of efficiency. The result was that many respondents were forced to pay as high as $1 each for these forms printed by local printers.

Sixty-One Tons of Mail Per Day

We are making some special arrangements with trade associations to whom we have previously given as many copies as they called for. We will give them copies now only if they furnish us with a mailing list to which they will certify that they will actually send out. This ties them up to the penalty clause if, upon investigation, we find that they are not doing the job. With some of them we are making arrangements for them to cover their own members of their association in return for our furnishing the forms. This looks like a good move because there are some 1,200 trade associations, and we may certify enough of them so that we can ease the strain of some 61 tons of mail going out of Washington per day. All of you are familiar with the almost hopeless job the Postmaster of Washington has on his hands, and anything that could be done to lessen this load is well worth the effort.

This unit controls the amount of stock that is ordered, sets up the maximums and minimums, figures the turnover, and keeps records showing our success and failure in doing a good stockkeeping job. We are utilizing practically all of our waste stock with some of these common use forms such as the telephone and transmittal slips. Inasmuch as the life of a reporting form is only 60 days, the stockkeeping is very difficult, but we believe we are getting it under control.

Conclusion

We have received a lot of encouragement from industry as a result of our work. Frankly we have had hundreds of "bouquets" for the standardization and professional compilation of the reporting forms. We are now having a consistent drive from industry to spread this standardization to the Army, the Navy, the Army and Navy Munitions Board, the Office of Defense Transportation, the Office of Price Administration, and other war agencies.

The Bureau of the Budget, as you know, has recently started the work of standardizing the content of forms, and after January 1, any form that has not gone "through the wringer" need not be answered by industry. The next step forward would be to standardize the format of all reporting forms for all war agencies. We believe we have demonstrated that it can be done. All that really is necessary is to agree on the principles and write them in a manual, and make it the law of reporting forms. The Government Printing Office would naturally be the focal point for the standardization of format, and production, and they are well equipped and able to take the load in this sort of standardization. Our officials are very well pleased with the result of our standardization program, and would be more than willing to cooperate with a general standardization program engineered by the Government Printing Office and we would lend all of the assistance that we could possibly render to accomplish this purpose.

The same sort of standardization program could be engineered by OEM for mailing lists. We have not gone far enough with our job to be very proud of our results as yet, and would be particularly appreciative of OEM's taking the lead toward coding and cataloging all mailing lists. Unquestionably we are all using many of the same lists. Very frequently OPA wishes to circularize exactly the same manufacturers that we circularize, and it certainly is not necessary for us both to have lists. The same thing is true of the Army, Navy, A&NMB, ODT, OWI, and others.

As a final and general conclusion, we believe that the work that we have done in the War Production Board could be done on a large scale, including all government agencies who require reporting forms from industry.

* * *

WPB BANS PORTABLE LAMPS

Production of portable electric lamps and shades containing critical materials has been prohibited by the War Production Board. The order went into effect December 12.

STEPPING STONES

There's no better training ground for business talent than a well operated purchasing department

By CHARLES FORD

IN one of its rare moments of frivolity, the late revered *Boston Transcript*, asked to define "hokum," answered: Hokum is hooey; hooey is boloney; boloney is bunk; bunk is tripe; tripe is blah; blah is applesauce. So what?

It seems nowadays the fashion in a good many quarters—even in Washington—that when you want to pick a man for a job, you hunt around for that one who knows the least about the subject involved, and appoint him. Sometimes it works.

I notice a lot of schools are giving courses in purchasing. Never having had anything to do with such a course, and not knowing in the least the way they are carried on, I must be eminently qualified to deal with the subject. Really, having been mixed up in purchasing for a good deal of my misspent life, I have often been puzzled trying to figure out how anyone can intelligently instruct classes in purchasing—especially if he's a Purchasing Agent. However, a popular lecturer used to say that he didn't suppose there was a Columbia alumnus or professor who could lay an egg; but the least promising candidate for one of the scrub teams could give more intelligent information about eggs than all the hens in New York state.

The late President Garfield, I think it was, used to say that his idea of a university was a log, with Mark Hopkins on one end and himself on the other. Similarly, it would seem that the best instruction one can get in purchasing is to act as assistant to a real blown-in-the-glass Purchasing Agent who is not scared about his job, who is broad-minded enough not to cover up things, and who is genuinely interested in the progress of those who work under him. A guy who can't soak up wisdom and experience in a berth like that—well, he might make a good soda-jerker. No two Purchasing Agents work alike, but that doesn't matter. If a youngster sat at the feet of half-a-dozen different Purchasing Agents, by the time he qualified for the degree of P.A., he would develop a technique of his own which wouldn't in the least be like that of anyone else.

In a big plant, not a thousand miles from New York, there is a Purchasing Agent who is a fixture and likes

it. He has had plenty of chances, in his own plant and elsewhere; but he likes his job, and the company likes him, respects his judgment and lets him have his head. They offered to dub him Vice-president in charge of Procurement, but he said: "Hell, no. I wouldn't dare put my feet on the desk if you called me that." He wasn't perfect, and knew it. He got into scrapes occasionally, but was most adroit in getting out of them with credit to all hands; he got the goods when and where they were needed, went through the last war keeping his feet warm and on the ground, and his head cool. As Purchasing Agents go, he is quite a guy.

He had half-a-dozen assistants, graded up like the rungs of a ladder. When his first assistant had spent a few years under him and learned the ropes, this particular Purchasing Agent went to the boss and said: "Bill's ripe to pick now. It's time we jimmied him out of the purchasing department and into a better job."

The boss had learned to take this seriously and look around. If the Purchasing Agent said Bill was good—why, Bill was good. So, when a shift elsewhere in the place opened up a better chance for Bill, Bill got that chance, with a green light to go ahead. A succession of Bills found their ways into selling, manufacturing, and branch offices; and most times they did well. When Bill was promoted, the second assistant was ready for Bill's job. The third became the second and so on down the line, with a newly hired male stenographer at the bottom. The newest assistant was always a stenographer, because in no purchasing job can an intelligent fellow get the run of things so quickly and thoroughly. In due time he would join the succession of graduated Bills and get out to grab off some real dough.

That purchasing department was a famous training school, because the Purchasing Agent took pride in developing young fellows. I believe they have now inaugurated an annual Bill dinner, with the Purchasing Agent in the seat of honor.

In that purchasing department, every one of the ladder-rung assistants had his job to do; but every transaction and every document was open to them all. They were encouraged to keep their minds open and their faces closed. When the Purchasing Agent chose to absent himself, be the motive purchasing or piscatorial, that crew of youngsters carried on like veterans. The P.A. always said he didn't mind how much any of them crowded ahead of their jobs, but he did mind if the crowded one didn't bump the fellow ahead of him. But he kept them good-natured about it.

Certain things are common to all purchasing departments of any size: an orderly and efficient liaison with sales and manufacturing; a set of records plenty simple so anybody can understand them and find what is wanted, and complete enough so that no transaction is missed. Add to these a vision of the problems of the other departments and the right personnel, a fine cooperation follows as a matter of course.

The rest is work. Except in the matter of personal contacts, a real Purchasing Agent never does anything he can get an assistant to do. And he ought to give the boys a chance at contacts, without letting go of the idea that it is part of his business to know personally everybody who enters the place for business reasons.

Now the schools can't teach contacts and personality. They can discuss methods in the abstract and pick them to pieces; but somebody has to supply the methods. Instructors can lecture learnedly and impressively about the mechanics of purchasing; but the vital things only experience can teach, and only the right personality can apply. Quick and accurate sizing up of people with whom one must deal, the establishment of profitable relations and making them pleasant, a broad view of the business world, the absolute confidence of all hands and the cook—there may be several hundred more things but they don't occur to me just now.

But this matter of developing young men ought to be a Purchasing Agent's hobby. Once a subordinate understands that his boss is out to push him up the grade as fast as he can take it, he is going to add his scramble to the boss's shove; and if his intelligence will stand the gaff, that house need never use an employment agency for a key job. A purchasing department organized along these lines, with the right guy for boss, will never encourage the profession of purchasing, even if there is any such animal; but it will turn out some damn' useful citizens and place them where they will do the most good, instead of keeping them waiting until the P. A. dies or gets fired.

And all this time the apostolic succession takes care of things when Bill gets boosted into a better job.

The Legal Adventures of Buyem Wright

THE ADVENTURE OF THE WIRED PAYMENT

Buyem Wright signed the order with the salesman's fountain pen.

"We'll mail a check to reach you on or before the 20th of this month," Wright suggested.

"That will be quite satisfactory," the salesman assured him, and on the 19th Wright hustled up to the cashier's wicket of the local bank during business hours.

"If you don't pay on the nail in these strenuous days they sell the stuff elsewhere. I'm a little late on a payment, if I depend on the mail, so I'll have to get you to wire the money instead," Wright averred.

"Gladly," the cashier agreed. The money was wired, the goods were duly shipped, but one of the seller's creditors attached them in transit, claiming that the seller was insolvent.

"I bought and paid for that order, and the title's passed to me," Wright contended.

"Not when you didn't pay in the manner specified in your agreement," the creditor retorted, but the Montana courts (in 235 Pacific Reporter, 767) ruled in Wright's favor.

"The mere fact that payment was not made exactly as required by the contract of sale will not prevent the title from passing," the Court ruled—and the creditor paid the costs.

A PURCHASE ORDER FOR HEALTH

Individual paper drinking cups are a potent factor in conserving production hours, maintaining workers' health, and building morale

By HARVEY M. HALL

WHAT does the purchasing man want to know when he sets out, these days, to buy products for factory or office? Chiefly he must determine:

Has a product quality? (A question the same in peace as in war.)

Will its use help speed production?

Is it made of non-critical materials?

Is the price right—that is, legal?

Old habit lines of buying are broken. Never before has the purchasing man needed ingenuity, perception and hard facts as he does today. Never before has he been required to know every alternative to every product, as he does now.

The scope of his job, too, is broadening. Not only must he deal in machines; he must help to keep America's manpower on the job. The reduction of sick absenteeism in industry is his responsibility, just as much as it is the plant physician's concern. For it is illness—not sabotage, nor strikes, nor even materials shortages, but plain old-fashioned aches and sniffles—that constitutes the greatest threat to war production. One thousand of the "Flying Fortresses" that are flying out from England to bomb Axis industrial centers could be constructed in the time lost annually due to sickness . . . 190,000,000 work hours, all told. Colds alone cost industry $450,000,000 a year.

Seeking products which will help to reduce this bill, by promoting and protecting workers' health, purchasing men are seizing on paper cups and containers. Actually the purchase of a paper cup may loom as important, if not more so, as that of a steel turbine. For the wise purchasing man knows that this is not an order for a paper cup; it is an order for health!

The importance of the paper cup to the war program is attested by the fact that 50% of the output of these products is now flowing into war industry and camps of the armed forces—and the output is at a record peak! Public health officials are agreed that, as a safe drinking vessel, the paper cup has no peer. Their explanation? It is a simple one, and can be best shown by an anecdote of the origin of the paper cup. Three decades ago a Kansas school-teacher visited Dr. Samuel J.

Crumbine, State Health Director who had just prevailed upon the State Health Board to pass an order outlawing the common drinking glass. The schoolteacher was perturbed because his pupils "wouldn't have anything to drink from." He picked up a piece of paper, folded it, and asked, "Will this do?" Dr. Crumbine nodded. "Of course," he replied. "For it will be used only once." It is interesting to note, in passing, that the schoolteacher, a year later, had started manufacturing paper cups and is now the executive of one of the largest paper cup companies in the country. At any rate it is that "single-service" feature of paper cups which distinguishes it from all other drinking facilities and which provides a guarantee that organisms causing measles, diphtheria, tuberculosis, common colds, mumps and other diseases will not be passed from user to user.

Getting the Answers

The current demand for products such as the paper cup is indicative, then, of the purchasing man's developing responsibility. Because this outlook may be new to some, let's glance, for a moment, at the way in which a smart purchasing man, setting out to buy paper cups, would answer the questions listed at the beginning of this article.

First, he would know—and if in any doubt he would consult local health officials—that the sanitary quality of the paper cup is excelled. To be sure that the products he chooses are sturdily constructed, he would purchase only well known makes.

Secondly, he knows the use of paper cups speeds production by preventing paralyzing layoffs of sick men. Representing a relatively small investment, paper cups nevertheless may, by decreasing absenteeism, result in hundreds of dollars profit to a company at the end of a year.

Third, paper cups are made of non-critical materials. Alarms about the paper shortage, following the attack at Pearl Harbor and America's war entry, tended to confuse the true situation regarding paper supplies. Only a shortage of collected *waste* paper existed and government officials have reported that even that strain now has eased. The supply of smooth virgin paper stock from which paper cups and containers are made, has been and remains ample.

Finally, the purchasing man would learn that the price of paper cups has altered very little, if at all, since December 7, 1941, and on August 3, last, the Office of Price Administration ordered discontinued the practice of charging extra for drinks served in paper cups and containers. This practice had developed in some soda fountains in southern states, with retailers claiming that they, themselves, were forced to pay more for paper cups. It was loudly condemned by health officials who, in asking the OPA for price control of paper cups, cried, "There must be no priority on health!" Though no claims of such upcharges have emanated from buyers for industry, purchasing men should be on the alert and, if encountering any rise over the March price, should report their experience to the local health official or to the OPA.

The Alternatives

The uses to which paper cups and containers are put in industry are many. Chief is the use of the paper cup for drinking purposes. Water, vitamin and salt tablets, milk and fruit juices are all dispensed by means of paper cup. The alternative? Either the common drinking glass or a drinking fountain. There is no question as to the menace of the first named. One might as well tolerate a well for drinking water in which typhoid germs are known to breed! Since, in 1909, the common drinking glass was outlawed in Kansas, its use has been declared illegal in every state in the union. Despite this unanimous censure, one may still see members of train or road construction gangs complacently gulping water from common tin dippers, office and factory workers drinking from a single glass. In Colombia, South America, this practice was forbidden among members of one construction gang. Sissies, the men were called, who were ordered to drink only from pretty white—and single-service!—paper cups. Derision of nearby gangs turned to envy at the end of six months. Workers who continued to use the common dipper were frequently laid up with colds. The "sissies" sailed through the winter with nary an absence due to colds!

Not so well known, perhaps, are facts regarding bubbler drinking fountains. Plant managers usually accept these drinking devices as reliable and efficient; yet recent studies at the University of Pennsylvania have proved that even fountains heretofore classed as "approved" cannot be guaranteed to supply a sanitary drink of water at all times. Researchers under Lt. Col. A. Parker Hitchens, Professor of Public Health and Preventive Medicine, learned that, in use, fountains present many hazards inviting possible contamination of users. Bacteria were found to be prevalent in bowls, drains and on the nozzles of fountains being used by students. Tests showed these bacteria may be transmitted to users in splashing water.

The alert purchasing man, keen to every angle, also realizes that, to the initial cost of the fountain must be added extra costs of water wasted, but that must be paid for!; replacements and the possibility that needed parts may not be available; inspection and maintenance; time lost for wiping up and, by women workers, for makeup repairs, after users are annoyingly splashed by water; and most important, absenteeism costs due to illnesses that may be transmitted via the fountain. All these added expense items are eradicated by the addition of a gooseneck attachment to the fountain and a dispenser of paper cups alongside it. An investment that many purchasing men feel is trifling balanced against results!

Helping the Nutrition Program

Of increasing importance is the necessity to promote health as well as protect it, by providing better food for workers. Here again paper cups and containers are playing a patriotic role. But, it is protested, a worker cannot eat a paper cup! True enough. But experience is showing that workers benefit from the nutritious food and drink that may be served in paper cups and containers. In Bridgeport, Connecticut, workers are eating better lunches than they have ever had before, as the result of a campaign aimed primarily at teaching women how to "Pack A Lunch A Man Can Work On". Foods never before seen inside a lunchbox, such as salads and hearty puddings, are being quickly and conveniently packed in paper cups and containers to give America's manpower an extra wallop.

Supplementary feedings have been highly recommended by scientists and production experts alike, as a means of counteracting mid-day fatigue and keeping production graphs steady. Such feedings, experts have learned, are facilitated by the use of paper cups and containers stacked by the hundreds, thereby taking little space, on mobile units. Dishwashing is eliminated, health is protected, danger of accidents or sabotage due

Continued on page 192

RED TAPE MUST GO!

☆

Fifth article in a vital series

WRITE THE ORDERS IN ENGLISH

Our production and economic program will go forward faster and more smoothly when business men can understand the orders. Half as much language would do twice as good a job.

Words will not win the war.

By STUART F. HEINRITZ

DURING the past several months, we have made a number of gratuitous suggestions on various phases of governmental procedure, calculated to relieve the burden of red tape incident to doing business in these days of economic stress, and thus to conserve manpower, months, and money for the war production program. Some of these suggestions have had sufficient merit to be accepted or adapted, turning a good many man-hours into useful productive effort, which formerly were dissipated in profitless routines and record keeping and in doing simple things the hard way. High ranking officers of the Services of Supply have been gracious enough to tell us that our campaign has been a distinct and lasting contribution to the furtherance of our national endeavor. They have said this despite the fact that Army methods have been frankly criticized when the facts have warranted criticism. They have recognized that the campaign is directed against no

individual or branch of the Army organization or other governmental agency, but against a system and a state of mind that entangles the procurement officer and the industrial contractor alike in its paralyzing meshes.

Another result of this series is that we in turn have received a good many suggestions as to points which might well be discussed under this heading of Red Tape, with a view to correcting or at least improving the situation. The purpose of this article is to pass along one of these suggestions which, with minor variations, has been the most frequently advanced. It is a simple request, and seems to us an eminently reasonable one: Tell WPB and OPA to write their orders in English, so that we can understand them.

Now it is obvious that this complaint, though couched in more general terms than a criticism of a specific form or order, is in fact identical—and farther reaching—than criticism of any one particular form. It reflects the Red Tape state of mind which goes into the phrasing of the ukases emanating from Washington to direct our ways of doing business, and all the wasted time and effort which this entails.

Fuzzy phraseology indicates fuzzy thinking at the source, and it results in exceedingly fuzzy thinking and action on the part of those who have to live by these edicts. No one can even estimate number of hours spent by earnest and intelligent Purchasing Agents in wrestling with the mounting pile of regulations which flow from the war agencies to the desks of industry, but it runs into the higher mathematical brackets and leads to working schedules which the Labor Relations Board would never sanction. Add to these the hours spent in explaining the regulations, more or less officially, and you have a picture of both production and economic management wasting untold time and talent in accomplishing unsatisfactorily what should and could have been done clearly and efficiently at the outset. To take it a step further, OPA compliance promises to be one of the biggest administrative jobs ever undertaken by any governmental bureau in this country. It could be slashed to a very small percentage of the present potential if we could start with a basis of clear understanding, and a considerable army of snoopers and explainers could profitably be transferred from the Washington bureaus to the task forces of production or combat.

Understanding is the necessary basis for compliance

At best, it is no small responsibility to keep abreast of the necessary regulations and to observe the rules which are to keep our economy running. Practically every well organized purchasing department now has its priorities specialist, and that assignment is a full time job or more. One Purchasing Agent decided to conserve the time of his "interpreter" by assigning another man to determine which of the orders were applicable to the company, and thus filtering out the great bulk of irrelevant material. That, too, has grown to be a full time job. It's just as difficult to deduce from many of the texts where they are intended to apply, as it is to deduce what is wanted if it does apply. Which seems more than a little silly.

Everybody's Job

Industry as a whole is eager to cooperate with any workable production and price program. Management as a whole recognizes that the welfare of the individual enterprise, like that of the individual citizen, is just another aspect of the national welfare; that planning and orders must come from the top; and that the threefold objective of upping production, equitably distributing materials in balanced ratio for the most essential end products of a war economy, and preventing inflation, is everybody's job. We do not follow the example of labor, which ignores the facts and categorically asserts that there are *no* strikes in war industries. But the list of deliberate infractions of material and price regulations has included only a minute percentage among the tens of thousands of industrial plants of this country. The report to the nation on the first anniversary of Pearl Harbor is an eloquent record of cooperation.

Cooperation has to work both ways. The willingness to operate under necessary controls has, we believe, been demonstrated by industry. On the other hand, governmental agencies have recently and strikingly demonstrated an inclination to simplify some of the requirements and paper work demands which grew out of the magnitude and complexity of the control job, the constant need for haste and for readjustment to changing conditions, and the difficulty of having to organize and administer the program simultaneously.

Unfortunately, good intentions are not enough. One of the other basic requirements, which has not yet been attained, is understanding. And there is little excuse why this understanding should still be shrouded in fog with each new edict, after two years of experience with directives and orders, for it is largely a matter of language. If the intent is clear in the minds of the administrators, it should be within human possibility to express that intent in words that are precise enough for the legal requirements of an order and still be comprehensible to the intelligence level of representative industrialists. And it is a matter of record that many industrialists understand—and occasionally use—words of more than one syllable.

Codes Can Be Clear

The NRA codes, which were written by business men, had at least this virtue of clarity. The court cases under those regulations generally resolved themselves

into proof of willful evasion or hinged on the basic question of constitutionality; there was rarely a question as to the meaning of a clause. On that score, the present problem should be no more difficult. Mr. Nelson and Mr. Henderson are both simple men, in the very best sense of that adjective—men whose minds work with directness toward clean-cut and straightforward objectives. The broad policies are not clear. But the orders to which they have affixed their signatures to carry out those policies, and by which industry must regulate its operations, reflect little of that simplicity. The tragedy of the situation is that the subordinate officers in Washington who are composing these influential documents, along with the lawyers and the doctors, are apparently unaware of this condition, or do not care.

What Does It Mean?

From the very beginning of the defense program, the big problem of Purchasing Agents and other business executives was to secure an interpretation of the various orders as they were promulgated. There were a few men close to the Washington scene and active in its councils, who endeared themselves to industry by their ability to give a simple, lucid and decisive exposition of what an order meant. George Renard, George Frank, John and Laurence Martin, are names that come readily to mind. Meanwhile some scores of others were likewise interpreting the statutes, archly interpolating the comment, "We may be wrong, but at least we try to be consistent and all make the same mistakes." The humor of this position seemed rather flat to men who faced shutdowns, fines, or other disciplinary action by reason of the mistakes. As a matter of fact, the mistakes were far from being consistent, which made confusion more confounded.

It became necessary therefore to decree that interpretations could come only from division heads, in writing, duly signed and sealed. You could still get an *explanation* of your problem. You could also go to jail or have your business suspended if the explanation wasn't supported by an official interpretation. Small wonder that the field offices of WPB and OPA got off to a bad start and achieved a reputation for impotence that still lingers in some areas. Their lot is scarcely happier today when they set out on their own, in distant cities, to help industry on such a new and complicated regulation as the Controlled Materials Plan, armed with a four-day course of instruction.

Business Goes Back to School

The next technique to be developed was the regional mass meeting for introducing each major new development or plan. You can gather a thousand or more business men for such a meeting in any large industrial city, drawing them from a radius of fifty or seventy-five miles, pathetically eager for information. The typical meeting succeeds in generating a lot of enthusiasm, but is likely to be rather vague as to what the enthusiasm is about. The presentation is necessarily very general in character. A considerable part of the program is taken up with pep talks, leading up to the speaker who is supposed to know all the answers. At the CMP meeting in New York City last month, the slide film and the speaker's script got permanently out of synchronization so that the explanation was hopelessly muddled. Nobody bothered to correct it so that the text and illustrations might bear some relation to each other. At the end of the session, the business man leaves with a little pamphlet to study by himself—and the matter is exactly as intelligible, or unintelligible, as before. His enthusiasm evaporates.

Currently, the popular method of interpreting a regulation is to prepare and issue a series of questions and answers, a pedagogical device reminiscent of a grade school text book. The fellow with a particular problem may find his question there, but it is more likely that he will find the queries about as apropos as the topics in a handy foreign language phrase book: "Did your grandmother pick a rose in the garden this morning?" When the authors of a law affecting the whole policy and procedure of American industry start asking themselves questions about it before the ink on the order is dry, something seems to be radically wrong. Why, in the name of Victory and common sense, can't those answers be written into the original order, in understandable English, or procedure instructions be incorporated by explicit instrutions in the appropriate form, so that the questions themselves need never be asked?

400 Pages a Month

This fault is not peculiar to any one of the agencies, but seems to be rather a common failing. Many of the current releases from WPB, starting with a preamble stating the purpose, indicate that it is for "clarification" of some point or other in a preceding order, indicating that the need for such clarification has been discovered after the original order was sent out and presumably put to work. A statement by Director Eastman of ODT, on November 30th, starts with the comment, "A great deal of misunderstanding has arisen concerning the Certificate of War Necessity for commercial motor vehicles." Yes, Mr. Eastman, and concerning a lot of other matters, too, in practically every department issuing directives to industry. But for the purpose of this study we shall deal primarily with the material emanating from OPA, which is probably the most prolific and the most esoteric of the lot.

In the recent hearings of the Joint Economy Com-

Vague wording is

the sign of

vague thinking

mittee of Congress, investigating the tons of printed matter which industry is being asked to assimilate in connection with the war program, this matter was dramatically illustrated when a file of OPA interpretations was introduced in the evidence. We quote from a newspaper report of December 3rd:

"Considerable amusement was produced by the production of four fat tomes of about 900 pages each, representing the 'interpretations' of forms and orders issued by the Office of Price Administration to business men within the last nine months.

"The books, banked up in front of Senator Harry F. Byrd, Democrat, of Virginia, who is chairman of the committee, and Senator Kenneth McKellar, Democrat, of Tennessee, constituted such a formidable rampart that the latter moved them over to one side saying, 'I want to see.'"

By circumstantial evidence, it would seem fairly apparent that any code of orders and forms which requires 400 pages a month of interpretation is either very badly written, or very carelessly written, or both. And it is an unreasonable amount of required reading to wish on a busy man, particularly if it has to be studied twice—to see whether it applies to his case, and then to find out what it really means and what he must do about it. But the business man, unlike the Senator, cannot settle the matter by pushing the amendments and interpretations over to one side. He has to read them, paragraph by paragraph and line by line.

Put Yourself in His Place

It would be a wholesome exercise if the governmental agencies would take the trouble to place themselves in the position of the industrial organization when making regulations and issuing orders. It would save time and trouble for themselves as well as for industry, and would make some ideas workable which are thoroughly impracticable as originally conceived. It is interesting to note a comment accompanying the WPB amendment to Conservation Order M-101 (Mica), issued on December 3: "Under the previous order Form PD-480 was filed by the consumer of mica. The amended order simplifies reporting procedures and provides that this form shall be filled in jointly by the consumer and the fabricator. *This change is necessary because consumers, it has been found, rarely have the necessary information to complete the report.*" That might have been ascertained before the original requirement was issued, and everybody would have felt better about it. The inference, too, is that reports filed prior to the amendment fell short of being useful because nobody in WPB took the trouble to find out that they were asking in the wrong place for some desired information.

Now for the benefit of OPA, we quote from some correspondence which may help toward a realization of the actual conditions under which these orders are read—a realization which might not normally ocur to those who spend their entire time and thought on such orders, and to whom, naturally, they may seem to be the matter of No. 1 importance. It refers to another order of very wide application. The writer is a graduate engineer, a man of long experience and high standing in purchasing, a past national officer of the National Association of Purchasing Agents. He directs a fair sized and excellently organized purchasing department. Among the thousands of recipients of OPA orders, this company would rank well above the average in intelligent and conscientious reading. We quote:

"The fuel oil ration order No. 11 is a pretty good example of complicated wording, though there may be some even better ones.

"Most of us have many interruptions and try to keep up on these orders by reading at odd moments, which of course is not conducive to obtaining a clear understanding of anything complicated. This particular order I spent three weeks on in this manner, got nearly through it, and then decided that most of it referred to exceptional cases and I was not likely to run into one of these. At any rate I can get straightened out easier by making out the application forms and seeing what happens. Besides, by the time I came to this conclusion we had had to make application and our affairs had progressed too far to make much of a change."

The letter goes on with a more detailed analysis of the order, which is in no sense arbitrary or unsympathetic, but the realistic statement of a practical problem. The index given at the beginning of the order is commended, though it is noted that many of the definitions start with an inconsequential word, making it difficult to pick out pertinent subjects quickly. It is also suggested that the definitions of thermal zones might better have been grouped with the instructions applying to each zone.

An interesting suggestion is then made as to the references required in reading through this order, which is far from being a simple straightaway procedure. In accordance with this suggestion, we therefore present:

A Personally Conducted Tour Through Ration Order No. 11 (Fuel Oil)

For three and a half pages of this 27-page order, we can go ahead without detours through preamble and definitions. Then progress becomes more difficult as we are required to make side excursions, retrace our steps, or leap on ahead in order to understand the order and continue. Here are the deviations from the course:

Reading control orders

is a full time

industrial job

Page 4

5051. Refer back to 5001-a-19.
5151-a-7. Refer to Ration Order 5A or 5C.
5151-b. Refer to WPB Order L-56 as amended.

Page 5

5202. Refer back to 5201.
5254-a-1. Refer back to 5253.
5254-b. Refer ahead to 5256-a-3 and to 5261-c.
5255-a. Refer ahead to 5257.
5256-a-1. Refer ahead to 5258.
5256-a-3. Refer back to 5254.

Page 6

5257-a. Refer back to 5254.
5257-c. Refer back to 5256-a.
5258-a-1. Refer to Table I.
5258-a-2. Refer to Table I.
5258-b. Refer back to 5258-a.
5260-a. Refer ahead to 5268.
5260-c-2. Refer back to 5253.
5261-a. Refer ahead to 5262-c.
5261-c. Refer back to 5254-b.
5261-d. Refer back to 5256-b.
5262. Refer back to 5261.
5262-a. Refer back to 5254.
5262-b. Refer back to 5254.
5262-c. Refer back to a and b, refer to Table I, refer back to 5261, a and b.

Page 7

5263-a. Refer back to 5451 and ahead to 5263-b.
5264. Refer back to 5263.
5264-b. Refer back to 5201-b.
5265. Refer back to 5263 and ahead to 5268.
5266-a. Refer back to 5256 and/or 5261.
5266-a-2. Refer to Table II.
5266-d. Refer back to 5259.
5267. Refer back to 5261-b.
5268-c. Refer back to 5451.

Page 8

5269-c. Refer back to 5262-c.
5269-d. Refer back to 5264 and/or 5265.
5269-e. Refer back to 5266-a and b.
5301. Refer ahead to 5303 and/or 5306
5305. Refer back to 5266-c.
5306-a. Refer back to 5268.

Page 9

4309-3-b. Refer ahead to 5452.
5351. Refer ahead to 5355.
5355. Refer ahead to 5451.
5401-d. Refer to ODT Order 21.

We are now approximately one-third of the way through the order, but like the dog, who is reputed to run up a mileage of seven miles in order to proceed one mile along the road, we have done a lot more than nine pages of reading. And we have been obliged to return to our starting place and pick up the thread of thought after each of our more than two score side excursions, some of which (as will be noted in the references on page 9, immediately above) involve a second reference after we have looked up the first.

The tour might be continued through the balance of the Order, but it would serve no useful purpose as the condition noted above is representative of the entire text, and to list the further references as we proceed from page to page would be mere repititious argument. It should be mentioned in passing, however, that in the course of this Order we are also referred to OPA Forms R120, R1100, R1101, R1102, R1103, R1104, R1116, R1117, R1118, R1119, R1125, 544 (revised), 549 (revised), and 560 (revised); also to Commerce Form 7525.

Washington Understands the Orders

At the N. A. P. A. convention last May, an OPA official explaining the then new Maximum Price Regulation interjected the remark that some of the terms and expressions used in that order might seem unfamiliar and obscure. "We who have been living with 'General Max' in Washington since the beginning of the year," he said, "have built up a special vocabulary, and we have become so accustomed to using these terms in talking about the order, that we know exactly what we mean by them."

Admittedly, this is a charming bit of whimsy, and it is certainly reassuring to learn that the administrators understand their own language. But it still seems just as important—yes, far more important—that the language should be clear and intelligible to the men who must interpret it, not in mere words, but in their business acts, under the threat of stringent penalties for misinterpretation. Simpler language, and about half as much of it, would help the war effort immeasurably. Words ought to be rationed in Washington.

In this discussion we have not touched upon actual forms and procedure, which are a separate story. Merely for the sake of argument, we might concede that these procedures and regulations are necessary. Then there is all the more reason why they should be phrased in language and form that is clearly and quickly understandable to the man who reads them, in order that the program may be put to work. Obscure language, at worst, invites evasion and misinterpretation on the part of those who may be so inclined; at best, it imposes delays on the program and a heavy and unnecessary burden on men who, after all, have their jobs to do in war production, besides reading orders and trying to understand them. Four hundred pages of interpretations each month represent a tardy, inefficient, and ineffective method of clarifying the purpose of a series of government orders.

So, without further verbiage, we return to our original theme and pass along the twofold suggestion to the authors of our wartime control regulations: Along with all the other considerations which must enter into the composition of these highly important documents, try to put yourself in the position of the man who has to read and obey these orders, and write them in English!

A well written order requires a minimum of official interpretation

INVENTORY CONTROL

Permanent benefits in materials records and controls will come from wartime regulations

By RICHARD WHITMAN

PURCHASNG Agents have always been faced with the problem of inventory control. Generally the inventory policy of an industrial concern has been governed or at least largely influenced by economic conditions. For example from 1915 until the end of World War I prices advanced, production expanded and inventories increased. With the end of the war there came a brief recession and some confusion. Prices started to fa!l but the trend was quickly reversed in 1919 and we saw an expxansion of business that led to rising prices. The index of commodity prices rose from 193 in February 1919 to 247 in May 1920.

The rapid price rise caused Purchasing Agents to rush out and buy goods. Inventories went up not only in unit quantity but also in dollar value.

Beginning in June 1920 a rapid decline occurred and many concerns found themselves with high priced inventories. From a sellers' market the country went quickly to a buyers' market and Purchasing Agents began a period of several years of buying from hand to mouth.

The beginning of World War II found business following a similar pattern. Many buyers purchased large quantities of materials which quickly caused rising prices and shortages of supply.

The situation was aggravated by the fact that many forecasts passed on to the Purchasing Agent were based on current usage, which was much higher than previous usage. Thus what was considered a 3 months supply in 1941 might have been a 6 or 8 months supply based on 1939 usage.

Shortly after Pearl Harbor we experienced a decided change in the attitude of the government concerning regulation of business. This change is leading us to a new era as far as inventory control is concerned. Today Management is called upon to regulate and control working inventories. The government made it mandatory by issuing Priority Regulation No. 1. As the war effort increased and goods became more scarce Management found the government introducing additional controls principally in the form of M and L Orders and then established an overall policy with the promulgation of the Production Requirements Plan.

When analyzed, P. R. P. is nothing more than a plan of inventory control by the government, intended to direct and regulate the flow of goods. The introduction to Form PD-25a used in connection with P. R. P. says in part, "Preference ratings authorized will be determined by the importance of the product in relation to the war program and essential civilian needs as evidenced by preference ratings received directing delivery of the product, by the end use of the product, by the types and quantities of materials used in their manufacture, and by such policies as may be established by the War Production Board." While many industries have suffered and will continue to suffer because of government regulations, Purchasing Agents realize that it was shortages which brought about priorities and allocations. Too many people have the impression that government restrictions have caused shortages. Although P. R. P. is likely to make you do without certain items and thereby cause an automatic reduction of inventory, it will in many cases be the means of your getting more material (providing you are entitled to it) by preventing someone who shouldn't have it from receiving it.

The Production Requirements Plan forced industry to analyze its operations in a manner entirely different from the way in which many concerns had operated in the past. It eliminated from inventory control a lot of the guesswork that so many people resorted to in former years, particularly when it came to the question of how much to buy and the estimate of probable requirements for the next three months. The country has too much at stake and industry is learning to eliminate guesswork as much as possible.

It is presumed some form of inventory control will be in effect for the duration either in the form of P. R. P. or some other plan. Students of purchasing are keenly interested in what the future will bring from the standpoint of working inventory policies.

One group might assume the government will seek to retain many of the present regulations, and that business after the war, will be faced with a controlled economy. Some economists say if it is desirable to have price ceilings in times like these why not have a floor under prices in times of recession. If you extend the philosophy, one can ask, "Why not inventory control after the war?" A more reasonable approach to the prob!em of future inventory policies would be to assume the government will want to retain any outstanding reforms discovered during the war period but will expect industry to continue any normal benefits derived from present regulations without having direct control by government.

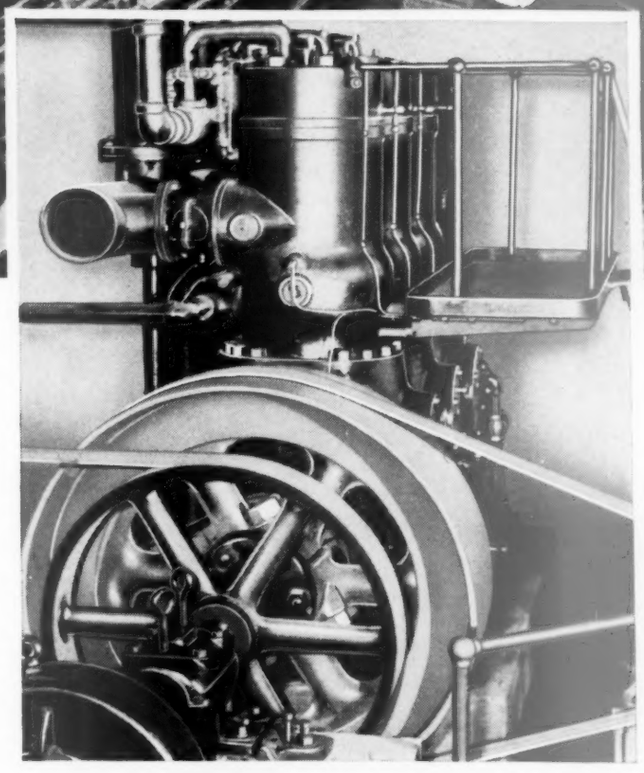
Purchasing Agents will certainly want to utilize any benefits derived from existing or future controls. So far the most evident contributions have been in the form of analysis required by P. R. P. In the post war days the Purchasing Agent will probably have better control of inventories because he will use the present form of analysis in checking his peace time business. This does not mean he will permanently be concerned with priorities and end use codes, but he will have a clear picture of materials on hand and what is required in the future. P. R. P. has forced many companies to install and keep up to date inventory records. After the war many concerns will probably find that those records, with a minimum of changes, can be adopted for peace time operations and will prove a valuable production and purchasing tool.

The problem of inventory control is vital to the welfare of the nation. In time of war it is necessary to prevent hoarding and to see that materials go where they are needed most. Steel and copper used in the manufacture of compacts wi'l not be much good if we lose the war.

Continued on page 196

POWER

...TO FINISH THE SCRAP!



SCRAP metal helps win wars! To simplify handling at its Portland, Me., plant, the Harcon Iron and Steel Company compresses old metal into compact 400-lb. cubes. And it takes plenty of reliable power to do the job!

For "power to finish the scrap," a 180-hp. Fairbanks-Morse Diesel is direct-connected to a pump which actuates a mammoth hydraulic press. It also drives an F-M generator which provides electricity for lighting.

If you require extra power for war production, use your priority to buy Fairbanks-Morse Diesels. They assure *low unit power costs* . . . plus no stoppage, no breakdowns, no letdowns — *now* or later! Fairbanks, Morse & Co., 600 S. Michigan Ave., Chicago, Illinois.

• *Compact 180-hp. F-M Diesel Power Plant at Harcon Scrap Metal Yard operates pump, generator, and compressor.*

FAIRBANKS-MORSE

DIESEL ENGINES
PUMPS
ELECTRICAL MACHINERY
SCALES
MOTORS

WATER SYSTEMS
AIR CONDITIONERS
FARM EQUIPMENT
STOKERS
RAILROAD EQUIPMENT

F-M

Diesels

New PRODUCTS · IDEAS

MOTORIZED LIFT TRUCK

■ Low first cost, light weight, and low operating costs—as little as nine cents per day—are said to feature the Hydro-Lectric motorized hand lift trucks, manufactured by Lift Trucks, Inc., Cincinnati. Trucks have rear wheel drive, automotive gear transmission, and excess motor and battery power. Four wheel construction assures safety and stability. Tests are said to indicate ability of trucks to handle average loads of 5,000 pounds continuously.

AIR POWERED RIVETER

■ Designed to afford increased speed and efficiency of flush riveting in aircraft production, the new "Rivitor" manufactured by the Tomkins-Johnson Co., Jackson, Michigan, is air powered with automatic feed and setting mechanism.

Its simplified construction permits the use of less critical materials, and requires fewer parts. Pressure for riveting is furnished by an air cylinder. The air pressure from the cylinder is applied (and stepped up) through a toggle mechanism.

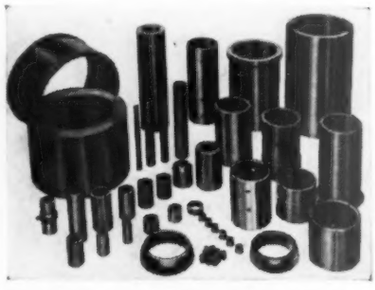
This type of construction is made possible by designing the machine to handle exclusively aircraft requirements for aluminum alloy riveting, with capacity for rivets ¼″ diameter x ¾″ long.

By using a different type of rivet set and rivet jaw construction, this machine can also be adapted to handle counter sunk head, round head, full and semi brazier head rivets. Available in throat depths ranging from 9″ to 36″.

NEW COLLET FIXTURES SPEED INDEXING & HOLDING

■ In addition to simplifying and speeding up operations, new type of collet chucking fixture announced by Zagar Tool, Inc., Cleveland, and styled the Zagar Collet Chucking Fixture, is said to eliminate the need for buying a special fixture for every job, and to have practically universal application in the holding and indexing of work on milling machines, lathes, drill presses, grinders and other machine tools. Two types are available for two purposes: (1) for holding and indexing, and (2) for holding only. Each type is furnished in 1″ and 2″ sizes, with capacities up to and including 1″ and 2″ diameter round shanks, respectively.

MOULDED FABRIC BEARINGS



■ Shortage of critical bearing metals is being overcome and performance results greatly improved thru the use of oil-lubricated non-metallic moulded bearings, developed by the Gatke Corporation, Chicago, Ill.

They are made of various material combinations developed especially to meet all kinds of service conditions using grease or oil lubrication.

They are replacing conventional bearings with highly satisfactory results in all kinds of service. They stand up under impact loads that are too great for metal bearings—have much greater wear life and lower friction. Lubrication is much less critical—they do not score journals, even if lubrication fails for limited periods.

WOOD SOLE SHOES FOR WOMEN WORKERS

■ Wood sole safety shoe, especially designed for women workers is announced by the F. J. Stahmer Shoe Co., Davenport, Iowa. Soles are of close grain maple with proper rock for ease in walking and correct arch support. Two-inch heel has composition lift to eliminate noise. Seams are water tight, uppers being attached to sole with wire and staple stitching. Uppers are of pliable full grain army tan leather. Shoes come in sizes ranging from 5 to 10. Safety toes can be incorporated.

LATEX PUMP

■ A pump developed especially for handling the butadiene-styrene mixture which forms chemical rubber latex is announced by Milton Roy Pumps, Phila., Pa.

This pump employs the typical step-valve design with double-ball checks but modified slightly to enable the latex to be handled with an absolute minimum of turbulence. The discharge checks are spring-loaded to enable them to seat instantly and positively in handling this particularly viscous material.

It is an opposed-end duplex pump designed to utilize the suction pressure, present in the butadiene-styrene mixing vessel, and pump against a greater pressure on the discharge end.

An important feature is the close plunger-stroke adjustment by means of

(Continued on page 92)

NO. 1 OF A SERIES

HOW TUBE-TURN WELDING FITTINGS BENEFIT WAR INDUSTRY

The FIRST WELDING FITTINGS 1ST AND STILL THE BEST

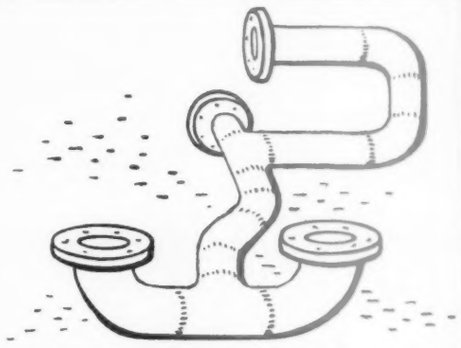
How Tube-Turn welding fittings speed-up piping installation for war production!

EASIER, FASTER, SAFER WELDING

Tube-Turn fittings require only easy circumferential butt welds—which insure faster, better, safer welding by both veteran and novice operators.

ALIGNING TIME GREATLY REDUCED

Tube-Turn fittings simplify lining-up operations—because their uniform wall thickness and true circularity permit quick alignment with pipe.

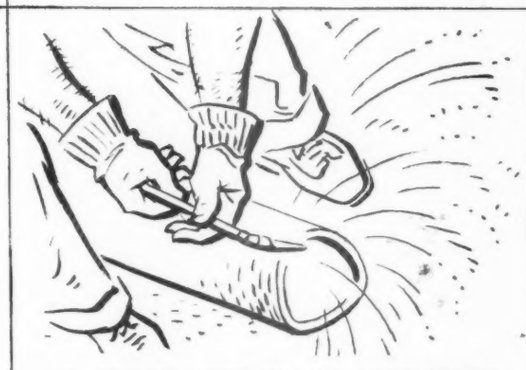


WHOLE SECTIONS CAN BE PRE-ASSEMBLED

As Tube-Turn fittings and welded joints stand strain and save weight, piping sections can be welded on the ground to save time, then erected.

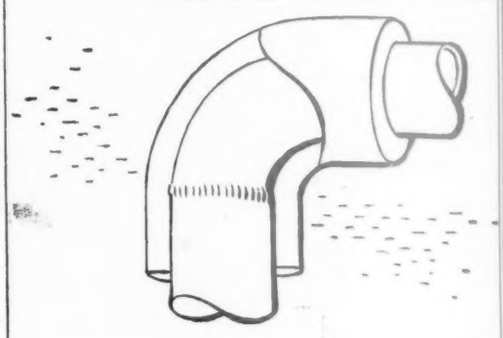
NO THREADS TO CUT

Welding removes the inefficiencies of threaded joints, plus the labor and time applied to threading. Tube-Turn fittings come ready to install.



NO TORCH CUTTING OR FABRICATION

Since all Tube-Turn fittings are installed with easy-to-make butt welds, they eliminate time-consuming, complicated cutting and fabricating.



FASTER AND EASIER TO INSULATE

Tube-Turn fittings are insulated as readily as the pipe, for the welds form one continuous tube. Eliminating many flanged joints shortens covering time.

FEWER FLANGED JOINTS SPEED ERECTION

Welding fittings supplant the need for many of the flanged joints necessary in screwed piping, which materially reduces over-all erection time.

FEWER HANGERS OR SUPPORTS NEEDED

As welded piping weighs less and stands vibration better than flanged systems, the fewer hangers needed save installation time on these items.

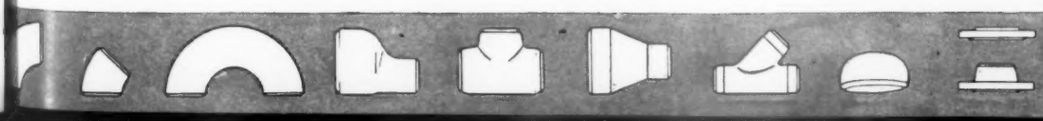
. . And you get stronger, leakproof systems that virtually eliminate piping maintenance or failures that can slow down or paralyze vital war industry!

TUBE TURNS
INCORPORATED

Branch Offices: New York, Chicago, Philadelphia, Pittsburgh, Cleveland, Dayton, Washington, D. C., Tulsa, Houston, Los Angeles. *Distributors everywhere.*

TUBE-TURN *Welding Fittings*

TRADE MARK



"Isabel" CHANGES HER MAKE-UP

Tanks, trucks, jeeps, guns, planes, boats all get new "facials" often—protective colorings that blend with backgrounds, changing with the seasons or locale. Paint sprayers, powered by dependable Briggs & Stratton gasoline motors, do these jobs quickly.

Unusual tasks, like this one, form only a small part of our service to the armed forces — and are in addition to dozens of major uses—but all of them equally important.

The war effort now requires the entire production of Briggs & Stratton 4-cycle, air-cooled gasoline motors, so they are available only to those who are serving the war program, or for approved "essential" civilian uses.

If your product fits these classifications, or if you are planning post-war production of gasoline-powered appliances and equipment—write us. We'll do our best to serve you.

Operators of Briggs & Stratton motors are urged to keep them clean, properly adjusted, regularly inspected and correctly oiled — to insure continued efficiency and long life.

Get *genuine* Briggs & Stratton repair parts from your dealer.

BRIGGS & STRATTON CORP.
MILWAUKEE, WISCONSIN, U. S. A.

To help make this a better world to live in

BUY WAR BONDS

4 CYCLE
BRIGGS & STRATTON
GASOLINE MOTORS

(Continued from page 90)

which the volume of latex handled is precisely controlled, from maximum pump capacity down to as little as desired, even to the rate of quart per hour if necessary.

It is self-cleaning and non-clogging. This type pump is available in capacities up to 3000 gallons per hour.

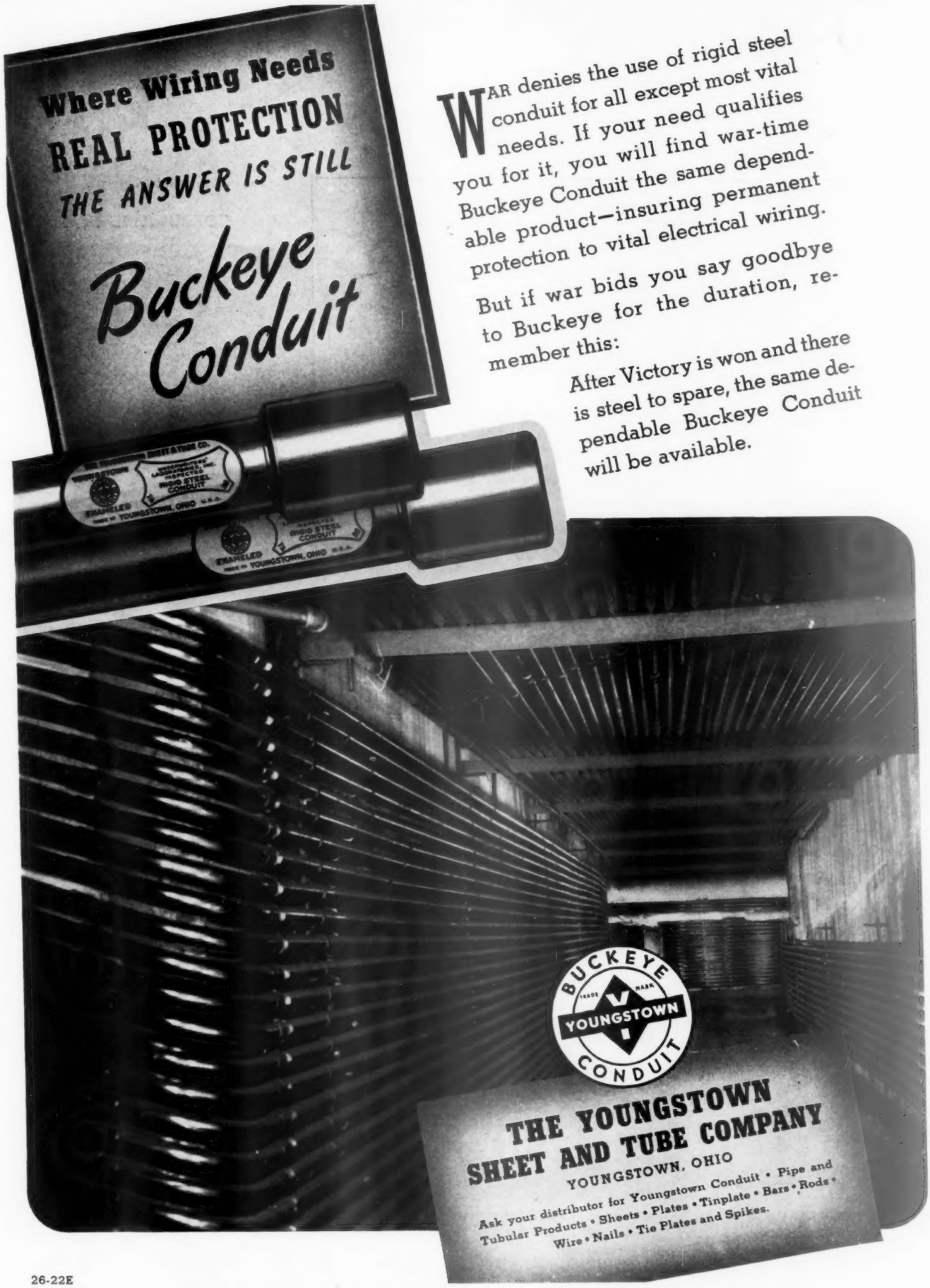
SOLDER POTS

■ Small capacity solder pots are being manufactured by Lectrohm, Inc., for continuous operation in radio, motor and similar electrical equipment plants where individual soldering melting pots are desired for each operator or for small repair and homecraft shops. They are sturdily constructed, consisting of a cast iron pot mounted, by a single screw, on a plated steel stand. A single heat, porcelain nickel-chrome heating element, which can be quickly and inexpensively replaced when necessary, heats the pot. These pots are available in two models (Model No. 200—1¾ capacity and Model No. 250—2 pound capacity) for operation on 110 v., ac or dc. A six foot Underwriters approved cord and attachment plug is furnished with each unit.

PORTABLE HYDRAULIC TEST BENCH

■ A portable hydraulic test bench that can be used for pre-flight checking of the hydraulic circuit of planes before leaving the ground, is announced by the Hydraulic Machinery Inc., Detroit, Mich. The testing includes putting the plane through all of its hydraulic functions without running the plane motors. Its equipment consists of a hydraulicly operated air compressor (high or low pressure) for the purpose of charging hydraulic accumulators. It can also be used to pump hydraulic fluid in and out of the plane. A variable displacement pump permits the unit to operate hydraulic circuit at different speeds. It

(Continued on page 94)


Where Wiring Needs
REAL PROTECTION
THE ANSWER IS STILL
Buckeye Conduit
ENAMELLED
TOUNGSTOWN, OHIO
BUCKEYE
YOUNGSTOWN
CONDUIT
THE YOUNGSTOWN
SHEET AND TUBE COMPANY
YOUNGSTOWN, OHIO
Ask your distributor for Youngstown Conduit • Pipe and Tubular Products • Sheets • Plates • Tinplate • Bars • Rods • Wire • Nails • Tie Plates and Spikes.

WAR denies the use of rigid steel conduit for all except most vital needs. If your need qualifies you for it, you will find war-time Buckeye Conduit the same dependable product—insuring permanent protection to vital electrical wiring.

But if war bids you say goodbye to Buckeye for the duration, remember this:

After Victory is won and there is steel to spare, the same dependable Buckeye Conduit will be available.

26-22E

When writing The Youngstown Sheet and Tube Company please mention Purchasing

(Continued from page 92)

has an adjustable pressure range of 0 to 1000 pounds per square inch. All of the controls are labeled and easily accessible from the outside of the unit. Provided with a hardwood top, mounted vise and built-in drawer—it is a combination portable hydraulic work and test bench that can be wheeled to any part of an aircraft plant or field.

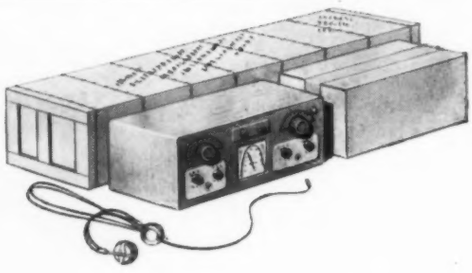
WAR GAS EXTINGUISHER

■ The O. H. Adams Company, Milwaukee, Wisconsin, has announced a sensational new fire and war gas extinguisher.

The extinguisher is recommended by the manufacturers as an effective fire extinguisher and as a decontaminator for the three major war gases: Chlorine, phosgene, chloractetophenone—tear gas.

This product is also recommended for combating automotive, airplane, industrial and marine fires, and is effective for household and factory fires, gasoline, cleaners, oil, paint and grease fires. The product is non-injurious and lasts indefinitely.

One cubic inch of fire extinguisher upon contact with fire, produces 1000 cubic inches of fire-smothering gas.



Cannoneers have "extra" ears

AS IMPORTANT as their manufacture, is the arrival *in good condition* of replacement and repair parts. Whether such material goes into storage or travels thousands of miles over land and sea, it must be packed in containers which meet Uncle Sam's specifications.

Co-operating with scores of manufacturers of war products, General Box engineers have obtained wide experience and a thorough knowledge of the requirements for war products containers.

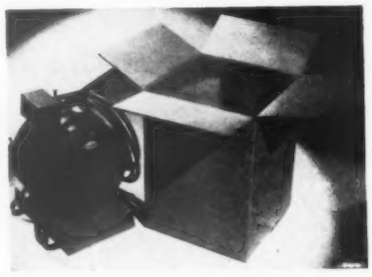
If you have a shipping container problem, General Box may be able to solve it quickly, may be able to help you determine which of the allowable alternates is most practical for your product. Write us.

For manufacturers of war products: General Heavy Duty Wire-Bound and Nailed Wooden BOXES *and* CRATES
For Domestic Service: Corrugated BOXES *and* Wood Cleated Fibreboard CRATES
Discontinued for the Duration: Generalite *and* Nailed Strapped BEVERAGE CASES

GENERAL BOX COMPANY

GENERAL OFFICES: 48 W. Illinois Street, Chicago, Illinois
DISTRICT OFFICES AND PLANTS: Brooklyn, Cincinnati, Detroit, East St. Louis, Kansas City, Louisville, Milwaukee, New Orleans, Sheboygan, Winchendon; Continental Box Company, Inc.: Houston, Dallas.

CORRUGATED BOX



■ How to simplify packing operations without sacrificing necessary protection for their product in transit was the problem Linendall Corporation, Chicago, solved by working in collaboration with the Package Engineers of The Hinde & Dauch Paper Co., Sandusky, Ohio.

The particular product in question—the new Barrett Safety-Fil Brake Pressure Bleeder, manufactured for Barrett Equipment Company, St. Louis—is a heavy, irregularly shaped piece of equipment with precision mechanisms which must be fully protected in shipment. To pack it efficiently, effectively and economically, H & D Package Engineers developed easily-assembled "tailored" inside packing to fit around the odd shaped product. This, in turn, is set into a regular slotted shipping box, so that there is double-thickness corrugated cushioning on top and bottom, in addition to inner "insulation" against jars and jolts.

SEAL FOR ASPHALT COATINGS

■ Carbo seal coat is a new product being manufactured by the Carbozite Corporation, Pittsburgh, Pa., following extensive laboratory tests. It is designed for use in the sealing of asphalt or bituminous coatings which are used for water-proofing, and which in many cases will not permit the applications of light colored coatings without a bleeding-through by the asphalt. It seals off the asphalt or bituminous coating, preventing this bleeding.

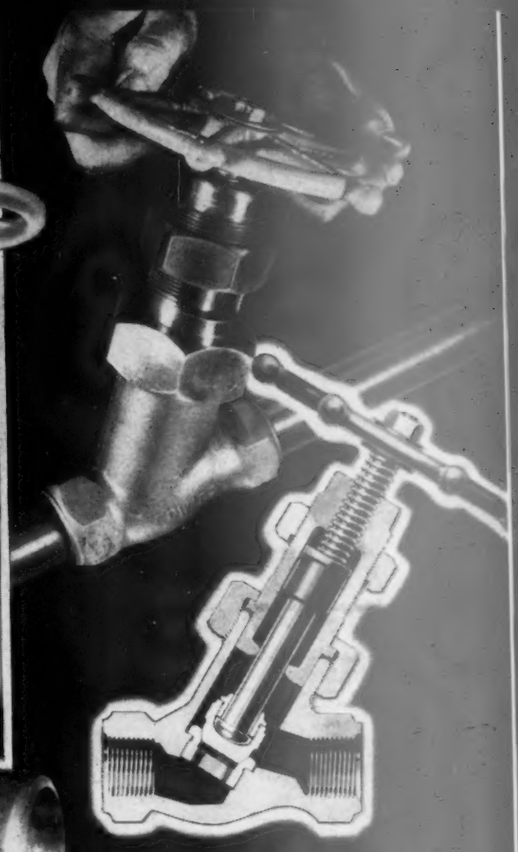
It is necessary to allow the coatings to dry for two or three days before putting on the finish coatings. The finish coatings should be applied with minimum disturbance to the seal, by brushing lightly or by spraying.

SWEEPING COMPOUND

■ Top rating for "non-combustibility" has been accorded a sweeping compound, product of The Philip Carey Mfg. Company, Cincinnati, Ohio. This sweeping compound is "non-combustible—chemical-

(Continued on page 96)

Forged or cast steel for all operating pressures from 150 lb upward. Edward stop valves set new standards for long life, easy operation in tough service.



Edward's famous Fig. 2688 illustrates full area body, streamlined flow passages and rugged construction of entire Edward forged steel stop valve line.

Cut Your Inventories By Standardizing On

EDWARD STOP VALVES

DESIGNED for maximum job and part interchangeability, Edward STOP valves make it possible to greatly reduce your inventories of spare valves and parts.

Cast or forged steel, globe or angle, ¼ in. to 16 in., 150 lb to 1500 lb and up operating pressures—the entire Edward stop valve line has many features in common. Such important things as streamlined flow for low pressure drop, sure closing action, fully guided disks, and laboratory tested materials for long service on the toughest jobs.

But important as all these are, don't undervalue the advantages of Edward interchangeability. Particularly these days when your storeroom shelves carry fewer and fewer parts.

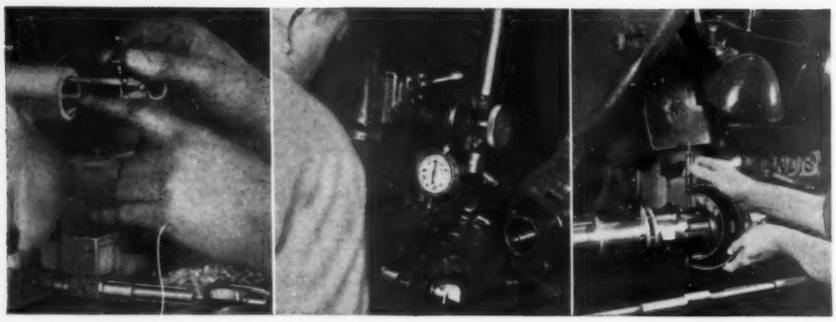
Write for Edward BETTER VALVES Catalog No. 101.

THE EDWARD VALVE & MANUFACTURING CO., INC.
1330 W. 144th STREET • EAST CHICAGO, INDIANA

Integral, cored-out guide ribs for accurate disk guidance, patented Impactor handwheels feature Edward flanged or welding end cast steel stop valves.

EDWARD *Steel* VALVES

CAST AND FORGED



PEAK
PRECISION
PRODUCTION...

can be maintained only when men have the right tools for the job *plus* complete confidence in those tools . . . STARRETT is working day and night to meet the urgent demand for precision tools occasioned by the war effort. At the same time the STARRETT standards of accuracy and workmanship that men have long learned to count upon are being strictly maintained . . . You may continue to put your trust in Starrett Tools.

THE L. S. STARRETT CO., ATHOL, MASSACHUSETTS, U.S.A.
World's Greatest Toolmakers

STARRETT TOOLS

Precision Tools • Dial Indicators • Ground Flat Stock • Hacksaws • Metal Cutting Band Saws • Steel Tapes

(Continued from page 94)

ly stable—shows no tendency to heat spontaneously—will not burn or evolve flammable vapors.

An asbestos product, the sweeping compound is said to efficiently remove deposits of oil and grease from floors, eliminating the hazards of fire as well as reducing the danger from falls, and having no acid or caustic ingredients, it will not damage the floor or injure the user or his clothing.

Having unusual absorbent powers it can be used and reused until thoroughly oil soaked.

DUST RESPIRATOR

■ In order to save metal for war production, the Comfo dust respirator has been re-designed with filter cases of black plastic, announces Mine Safety Appliances Company, Pittsburgh, Pa.

U. S. Bureau of Mines-approved, this well-known respirator now offers better appearance plus less resistance to air flow. The filter container units are thinner, with rounded edges, permitting even better sidewise and downward vision.

The re-designed plastic filter cases have high impact strength with no electrical conductivity. They are not affected by perspiration.

Retaining every advantage of safety and comfort in dust protection, the field-proved plastic model has twin side-placed replaceable filters of unusually large area. The unit is easy to clean and maintain, and is available in types to meet various dust and mist conditions.

TYPEWRITER CLEANER

■ To make typewriters and other office machines last longer and to improve the clear-cut appearance of their impressions, is the job Durol, a new kind of typewriter cleaner, supplied by Reliance Pencil Corp., Mount Vernon, N. Y., and distributed through stationery and office equipment stores. It is a liquid cleaner, and comes in three and eight-ounce bottles which are fitted with individual applicators and sealers on the cap to prevent evaporation. It may also be obtained in sixteen-ounce and quart sizes for refills. It is said to be equally effective for cleaning adding

(Continued on page 98)

MEN of BILLINGS

Representing millions of man hours of experience in the art of Forging. Each skillfully performs his particular job in the production of Billings Forged Tools. Today, the "Men of Billings" are earnestly devoting their knowledge and experience to the one purpose — winning the war through the production of Billings Tools and Aircraft Forgings.

BILLINGS always have been good

40 YEARS

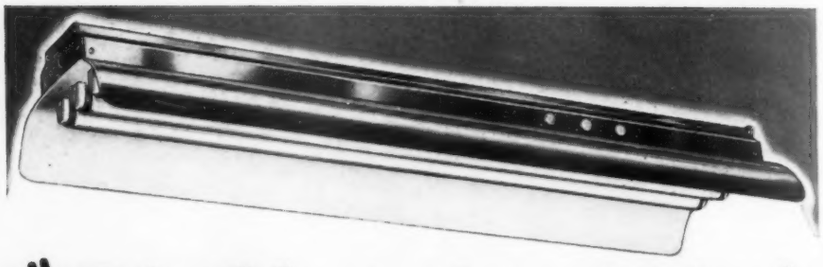
a blacksmith — introducing August C. Harkbarth, master blacksmith, one of the "Men of Billings," plying his trade at a hammer which is producing thousands of Billings Forgings.

Of course he buys WAR BONDS weekly — *more than 10%, too.*

FORGED *Billings* TOOLS

THE BILLINGS & SPENCER CO. HARTFORD, CONN., U. S. A.

When writing The Billings & Spencer Co. please mention Purchasing



"Skilled Lighting"

Gives the Answer!

Wheeler's new "War-Aid" RLM Fluorescent Fixtures retain top efficiency with Non-Metal Construction!

No longer is there any need to worry about continued supplies of high-economy, production-boosting fluorescent fixtures for war plants! Wheeler *Skilled Lighting* now includes new "War-Aid" Fluorescent Fixtures made with a minimum of hard-to-get sheet metal. What's more, all the lighting efficiency of previous models is retained!

New Non-Metallic Reflectors

Reflectors are made from a rugged, non-flammable, moisture-resistant non-metallic material. Reflecting surfaces of chip-proof, washable baked enamel have an enduring reflection factor of not less than 84% . . . provide minimum overall efficiency of 80% in 48" 2-lamp units, 73% in 3-lamp units and 73% in 60" 2-lamp units.

Wheeler "War-Aid" RLM Fluorescent Fixtures are available for Individual or Continuous Run installations.

Get Complete Data

Write for full details of Wheeler Non-Metallic Fluorescent Fixtures and complete catalog of Wheeler Incandescent Fixtures. **Wheeler Reflector Company, 275 Congress Street, Boston, Mass.** – New York – Cleveland. Representatives in principal cities.

Wheeler Non-Metallic Fluorescent Fixtures

- New Non-Metallic reflectors . . . sturdy, non-flammable, moisture-resistant.
- Chip-proof baked enamel finish . . . grey outside; permanent washable white reflecting surfaces.
- Provide full power-economy of fluorescent lamps, and undiminished overall lighting efficiency.
- Made for two or three 40-watt lamps, or two 100-watt lamps; in types for individual or continuous run installations.
- Reflector can be separated from wiring channel by loosening two thumb screws. Chain hangers prevent reflector body from dropping to floor. This feature permits quick and easy access to all operating equipment which is installed in wiring channel.
- No loose parts such as bolts, screws or nuts to handle.
- Fixtures can be mounted from chain, conduit, close to the ceiling, or can be provided with new "C" Clamp Slide Hanger.
- Design approved by Bureau of Standards. Performance guaranteed by RLM Standards Institute.

DISTRIBUTED EXCLUSIVELY THROUGH ELECTRICAL WHOLESALERS

Wheeler REFLECTOR COMPANY

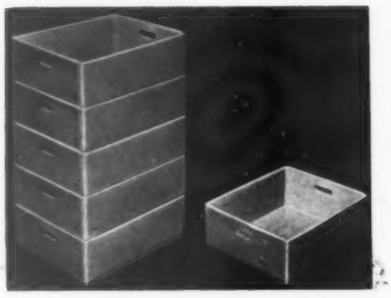
Lighting Equipment Specialists Since 1881

(Continued from page 96)

machines, checkwriters, billing machines—in fact all office equipment that has type and plates that must be kept clean for most legible impressions.

Upon request a test bottle is sent to all interested companies.

FIBREBOARD SHOP BOXES



■ Illustration above is quite explanatory. It shows heavy, solid fibreboard shop boxes devised by the Container Corporation of America, for carrying parts from one department to another in metal working plants. Attention is called to the nesting feature which permits stacking to save floor and bench space.

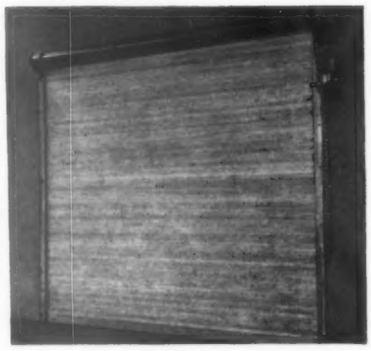
HEAVY DUTY CASTERS

■ Three heavy duty truck casters capable of taking loads up to 4500 pounds each have been announced by the Bond Foundry & Machine Company, Manheim, Pa.

These casters are furnished in three different sizes with each size available in three different style wheels.

The sturdy, all steel construction reduces breakage—cracking—or excessive wear even under peak loads. These casters swivel easily and are pressure lubricated throughout.

WOOD ROLLING DOOR



■ The Kinnear Manufacturing Co. of Columbus, Ohio, produces an upward-acting, wood rolling door providing a much needed answer for war time door requirements, and offering a type of door operation preferred for many openings. By incorporating the same upward-operating principle used for many years in the Kinnear steel rolling door, this product is

(Continued on page 100)

Swinging Jeeps across the Creeks . . .

ROEBLING "Blue Center" won't let them down!

It's a fast-flowing stream. A pontoon bridge won't do... So watch the Engineers swing one of their mobile cableways into action. A soldier swims across and a boat follows the line that was lashed to his body. Then comes the Roebling guy lines, bridge cable and anchorage tackle. In no time at all, the motorized winches are hauling jeeps and trucks across the 700 foot span.

It's another of those wartime miracles where the Corps of Engineers wrote the ticket and Roebling supplied the wire-making experience and the wire rope.

Experience from a hundred industries . . . and steel that exactly meets the needs of each. Wire rope . . . right for factory cranes or power shovels or bulldozers . . . right for victory ships or oil well lines or mine hoists. Experience that is woven into every inch of Blue Center, giving it the stamina to withstand unusual loads on the battle or production line.

JOHN A. ROEBLING'S SONS COMPANY
TRENTON, NEW JERSEY
Branches and Warehouses in Principal Cities

WIRE ROPE IS INDISPENSABLE TO WAR

You can do your part to speed output and conserve steel for all America by getting the most out of the wire ropes you have. Faulty sheaves, for example, may be killing your ropes... preventing them from delivering the full service life that has been built into them. Here are a few things to look for:

1 See that no sheaves are out of alignment.

2 Check with a gauge for deeply worn or cut grooves.

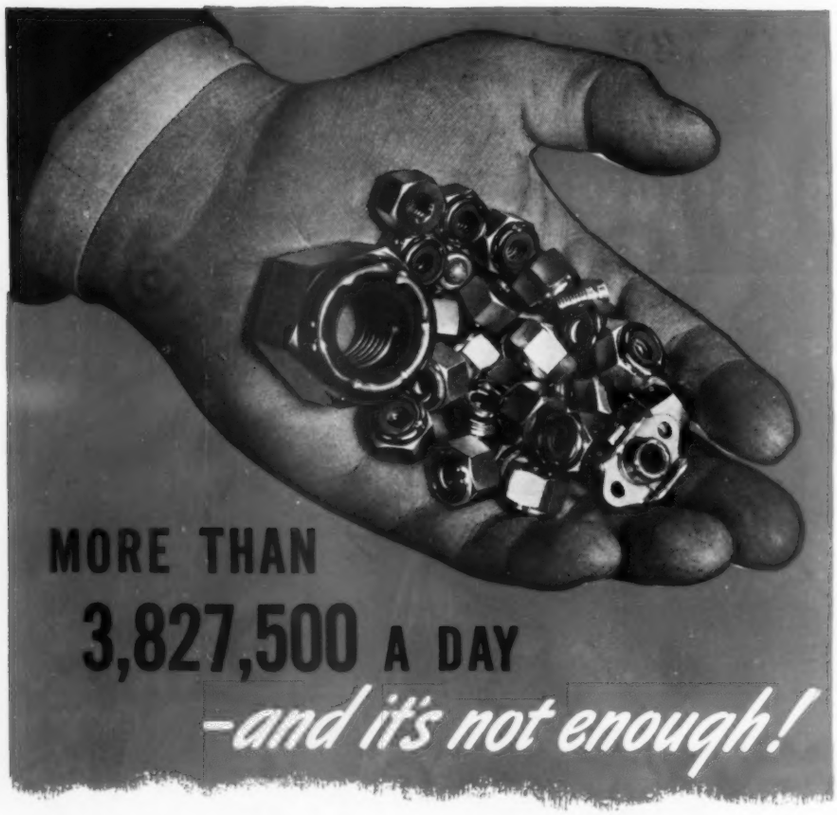
3 Watch out for broken rims.

4 Check for worn or damaged journals that cause sheaves to stick or wobble.

5 Check for bent shafts that cause whipping or vibrations.

To help you inspect wire rope sheaves systematically and easily, we have prepared the helpful pamphlet shown left. Our nearest office will furnish as many copies as you need.

When writing John A. Roebling's Sons Company please mention Purchasing



EVERY single day almost four million Elastic Stop Nuts go into war production.

Even at that, and with all our expanded plant, it doesn't fill the demand.

It happens that the most urgent need right now is on aircraft. Every American plane that takes the air has some important part of its structure fastened with these strong, tight-holding nuts. Some types take as many as 35,000 in a single ship.

The reason is: *these nuts stay put under the toughest circumstances.*

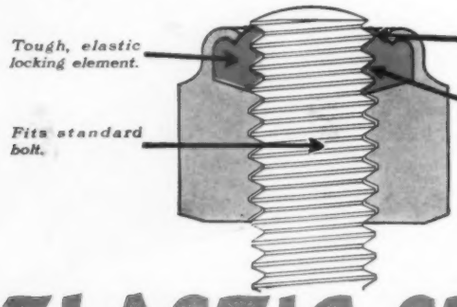
You handle them exactly like regular nuts. They go on fast, lock immediately and automatically.

There's no need of pins, washers or auxiliary locking devices.

Once on, they stay there—never shake loose. But you can take them off and put them back on many times and they won't lose their locking ability.

This is why there are more Elastic Stop Nuts on America's planes than all other lock nuts combined. And why they are also used in important structural applications on guns, naval vessels and other war equipment.

We have made billions of Elastic Stop Nuts and, as far as we know, not one has ever loosened.


Tough, elastic locking element.
Fits standard bolt.
Seals threads at top—prevents corrosion of working threads.
Locking collar cannot harm the bolt threads.

● Write for folder explaining the Elastic Stop self-locking principle.

ELASTIC STOP

SELF-LOCKING NUTS AND AIRCRAFT FITTINGS

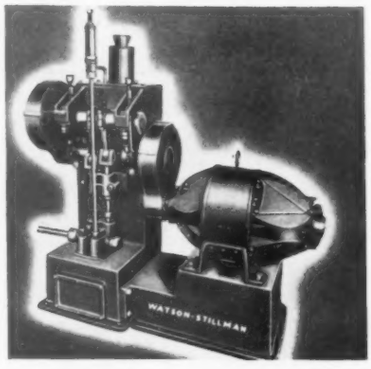
ELASTIC STOP NUT CORPORATION
2330 Vauxhall Rd., Union, N. J.

WITH THE RED COLLAR—SYMBOL OF SECURITY

(Continued from page 98)

reported to afford many of the same advantages as the steel door, including overhead storage, space economy, convenience, neat appearance, and long years of service. In addition, the door makes slashing reductions in the use of vital war materials, permitting its unlimited use.

HIGH PRESSURE STARTING PUMP

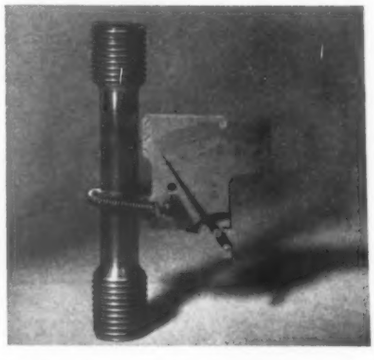


■ A new motor-driven starting pump for high pressures has been delevoped by the Watson-Stillman Company, Roselle, N. J. This simple compact unit is designed for primary or auxiliary service. It is an efficient, economical starting or test pump for oil and water. It may be used with many kinds of equipment including marine diesel engines on tankers, yachts and other vessels as well as stationary diesel engines in power plants, commercial buildings and water works.

The pump is a two-plunger vertical unit. Its ¾″ diameter plungers have a 1½″ stroke. Powered by a 2 hp. motor driving at 720 RPM, the pump develops 4000 pounds per square inch. It delivers 130 cubic inches per minute at a pump speed of 100 RPM.

The overall dimensions are 48″ by 23″. It stands 48½″ high. It weighs 1400 lbs. Its tank capacity is 20 gallons.

STRAIN GAGE



■ The Porter-Lipp strain gage, an American built instrument, is offered by the Baldwin Southward Division of The Baldwin Locomotive Works, Philadelphia, Pa., to meet the demand for structural testing devices. It is claimed to be supe-

(Continued on page 102)

"Yes! 3 typewriters can do the work of 4!"

STANDARD'S method effects typewriter economies without RADICAL CHANGES!

THE SURVEY made for W.P.B. by the National Office Management Association reveals over 40 practical ways to keep essential war work moving smoothly with fewer typewriters. Recognizing all these possibilities, your problem is to choose one or more methods that will *increase* typewriter production with *minimum* disruption of existing procedures.

Therefore, consider the simple improvement of writing industrial systems of control *continuously*—with Standard Kant-Slip forms. This alone often increases typing output from 25% to 50%, especially where loose cut forms are replaced and many needless operations are eliminated.

Then, typewriter-consuming red tape can be reduced in other ways. For example, you can select several related systems now written separately and combine them into a single form typed *continuously* at *one* operation. More than that, you can speed typing by modern form design. Simply by streamlining the data in a form heading from zig-zag typing to horizontal flow, utilizing tabular stops, a time saving of from 8% to 12% can be effected.

Yes, *three* typewriters can do the work of *four* without radical changes and without endangering your war production schedules. Your Standard representative can quickly tell you how Standard's unique form-writing methods and Formcraft services can give you these results *now*.

THE STANDARD REGISTER COMPANY
DAYTON, OHIO

Pacific Coast: Sunset McKee-Standard Register Sales Co., Oakland, Calif. *Canada:* Crain Printers, Ltd., Ottawa, Ont. *Great Britain:* W. H. Smith & Son, Ltd., London.

RELEASE TYPEWRITERS by converting certain typewritten records to handwritten Victory Systems. The speed, accuracy and legibility of writing continuously on Standard Kant-Slip Registers are proved. You can "make the pencil a business machine."

GET THIS FREE BOOK! A 24-page presentation that tells you how to save typewriters by Standard's Victory Systems—typed and handwritten. Explains Standard's complete service. Cites actual cases. Write for "What's the Answer?"

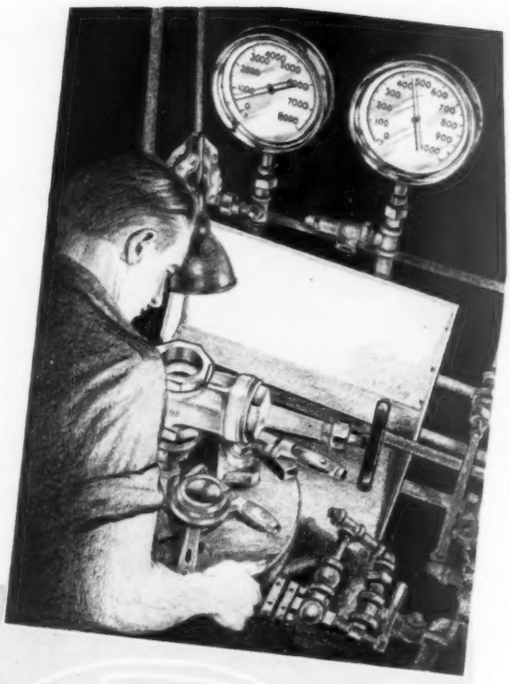
Standard Systems
of Business Control

"The Forms With the Punch"

© 1943 THE STANDARD REGISTER CO.

When writing The Standard Register Company please mention Purchasing

Every Lunkenheimer valve is regularly tested on both sides at low and high pressure for seat tightness, and then given a shell test. The slightest leak causes rejection. Test pressures far exceed rated pressures.



But

The Final Test of a Valve . . . is Performance

How does it hold up in service? Does it stand the gaff of hard usage? Is it dependable? Is it economical to use? How does it stack up in *lasting* qualities? The answers to these questions are the final and only convincing test of a valve. Ask any production man.

Now, when performance is more important than ever, when unnecessary time out for repairs is waste, and when new valves aren't so easy to replace, valve users are profiting from their foresight in buying Lunkenheimer.

Rigid testing procedure is but one of the many precise steps in manufacture by which Lunkenheimer has maintained valve quality through the years. These steps are your assurance that once installed, Lunkenheimer Valves will give you more in uninterrupted performance for today's non-stop production schedules.

Since virtually all materials used in the manufacture of valves are on the list of critical materials, valve users are urged to furnish the highest possible preference ratings and proper "end use" information on their orders. This will be of mutual helpfulness.

THE LUNKENHEIMER CO.
"QUALITY"
CINCINNATI, OHIO, U. S. A.
NEW YORK CHICAGO
BOSTON PHILADELPHIA
EXPORT DEPT. 318-322 HUDSON ST., NEW YORK

LUNKENHEIMER VALVES

(Continued from page 100)

rior to similar devices formerly imported.

A mechanical type of gage, it is accurate, light, compact, rugged and convenient, yet inexpensive. The strain multiplication factor of this gage is approximately 300 and it has a range of 0.008 in. or better.

Weighing only 0.4 oz. it has overall dimensions of 1¾ in by 2 in. by ⅝ in. It is graduated so that each division corresponds to a strain of approximately 0.0001-in. and has a readable accuracy of 0.00002-in. for gage length of one inch.

SAFETY HAIR NETS

■ Designed particularly for women industrial workers employed around machinery and power driven equipment. Holds hair in place and out of the eyes.

Attractively made of heavy rayon silk in a variety of styles and in a wide assortment of colors. Will not shift or slip, stays firmly in place and will give months of satisfactory service.

Manufactured by Industrial Products Company, Philadelphia, Pa.

DUST-TIGHT RELAY

■ A dust-tight relay especially designed for aircraft applications requiring high current-carrying capacity without sacrifice of compactness and light weight has been announced by the General Electric Company, Schenectady, N. Y.

This relay is a solenoid-operated device with the normally-open contacts rated at 10 amperes direct current. These contacts will make or break 30 amperes at altitudes up to 40,000 feet. The coil, contacts, and plunger are enclosed in a dust-tight housing, and the unit is corrosion-proof, meeting 200-hour salt-spray tests as stipulated by various government agencies.

It can be furnished in a single-pole, single-circuit form with normally-open contacts or in a single-pole, two-circuit form with one normally-open and one normally-closed contact. The operating coil can be furnished for either 12- or 24-volt d-c operation. The relay can be mounted in any position on a metal or non-metallic base.

NEW PRODUCTS — IDEAS

(Continued on page 172)

IT'S DOUBLY IMPORTANT NOW—

EXTEND THE LIFE OF YOUR FEEDING FINGERS AND COLLETS

Follow these suggestions to help feeding fingers and collets give longer and better service at a time when unusual demands are causing long delays for replacements:

Use only **CLEAN BARS** of stock. Dirty bars should be wiped clean before using. This is a major step toward longer life for collets and fingers.

AVOID BREAKAGE and work spoilage by keeping collets and the seats on which the collets rest, free from chips and dirt.

DO NOT DRIVE BARS into feeding fingers. See that all bars have a little chamfer on the end to aid them in entering the feeding fingers readily.

MAKE SURE the collet and finger are the **correct** size for the stock — otherwise breakage may occur.

USE FEEDING FINGER ADAPTERS to utilize the same finger in machines of different sizes — reduce the number of different fingers required for each size of stock.

IMMEDIATELY after removing a feeding finger or collet, clean it and place it in the proper storage compartment where it can be found easily for its next job — or by another operator.

These small details are important to keep your production high and to avoid delays that may occur due to the difficulty in obtaining new collets and fingers. It's **another** way in which you can help to **keep machines producing** for the united war effort.

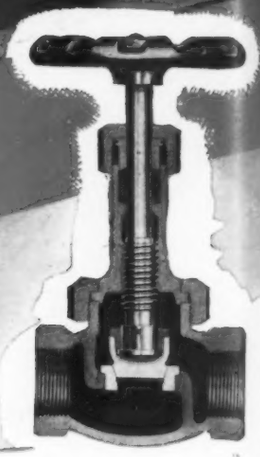
E
We are proud to be honored with the Navy "E", awarded for outstanding accomplishment in Defense production.
Brown & Sharpe Mfg. Co.
Providence, R. I., U. S. A.
JBS

Reproductions of this advertisement for use on your bulletin board furnished on request.

BROWN & SHARPE

WALWORTH

VALVES
FITTINGS for
TOOLS



BRONZE VALVES

Gate, Globe, Angle and Check—These Walworth types are made for all pressures, temperatures, and services for which bronze valves are suitable. Walworth No. 225P Globe Valve, illustrated, has a stainless steel, plug type, seat and disc, heat treated to a minimum of 500 Brinell hardness. Boiler scale, sand, grit, and other foreign particles cannot mar the surface of either the seat or disc. Wire-drawing is practically eliminated. Extra large stems and long stem threads have been provided to decrease thread wear and increase valve life. Every part has been designed to assure maximum protection against wear and leakage. For complete information regarding Bronze Valves refer to Walworth Catalog 42, Sections 2-6.

CAST STEEL VALVES

Illustrated at the left is a 12", 1500 lb. Walworth Steel Valve with welding ends. Walworth Steel Valves in all series can be furnished with welding ends, screwed ends, or flanged ends within the limits of war production. The complete line of Cast Steel Valves, in Gate and Globe types, have extra strength and protection due to heavy walls. Deep stuffing boxes eliminate costly leaks. Flow loss at high velocity is decreased by streamlined ports. Every detail of design, metallurgy, and construction helps to assure better and longer service. See Sections 16-17 of Walworth Catalog 42 for complete data on Cast Steel Valves.

WALWORTH

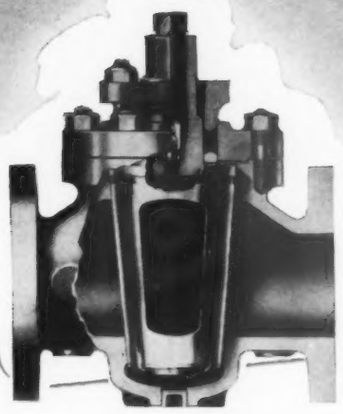
WALWORTH COMPANY
60 EAST 42nd STREET, NEW YORK

VALVES
FITTINGS
and TOOLS
Backed by 100
Years' Service

DISTRIBUTORS IN PRINCIPAL
CENTERS THROUGHOUT THE WORLD

STEAM · OIL · WATER · GAS · AIR

and other liquids and gases

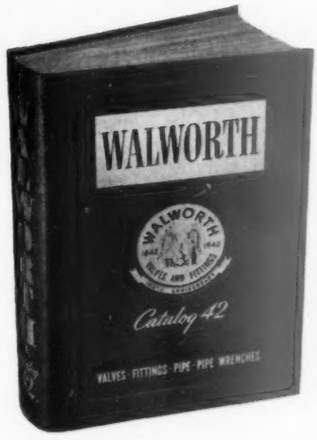


LUBRICATED PLUG VALVES

Some fluids are difficult to control with conventional types of valves – but Walworth Lubricated Plug Valves do the job safely and easily. They may be opened or closed with but a quarter turn of the handle, and have proved their ability to give a dead-tight shut-off. Operation is sure and smooth. All these qualities plus greater protection against corrosion and erosion make Walworth Lubricated Plug Valves ideal for "difficult" jobs. They are made in sizes from ½ to 24-inches and for pressures from 125 to 5000 lbs. Complete information on Lubricated Plug Valves will be found in Section 15 of the new Walworth Catalog.

WALSEAL FITTINGS

For Leakproof "One-piece" Copper or Brass Pipe Lines – Walseal Fittings are threadless bronze fittings into the ports of which the exact amount of silver brazing alloy has been inserted by Walworth at the time of manufacture. Joints are made by inserting the pipe end into the fitting port, then heating both pipe and fittings with an oxyacetylene flame. The result is a *Silbraz Joint* which saves time and effort, and which is silver-brazed – not soft soldered. A brass or copper line made up with Walseal Valves and Fittings is actually a "one-piece" line, leakproof, vibration-proof, shock-proof, and corrosion-resistant. Refer to Section 20 of Walworth Catalog 42 for complete information on Walseal Fittings.



SPECIFY FROM THE NEW WALWORTH CATALOG 42

The new Walworth Catalog 42 is just off the press. It gives the latest information on any question concerning Walworth products. It is clearly indexed and contains complete up-to-date data on valves, fittings, and pipe, including working and test pressures, plus service recommendations. Conformity of metals to A.S.T.M., Marine, and U. S. Navy specifications is given in detail. Dimensions for layout and operation, as well as engineering data, make valve and pipe installations easier and add to the usefulness of this new Walworth Catalog 42. Be sure to get a copy. Fill out and attach the handy coupon to your letterhead.

Address your inquiry to Dept. **P2,**
Walworth Co., 60 East 42nd St., N. Y. C.

Please send a copy of the new Walworth Catalog 42 to:

*Name*_____

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*Company*_____

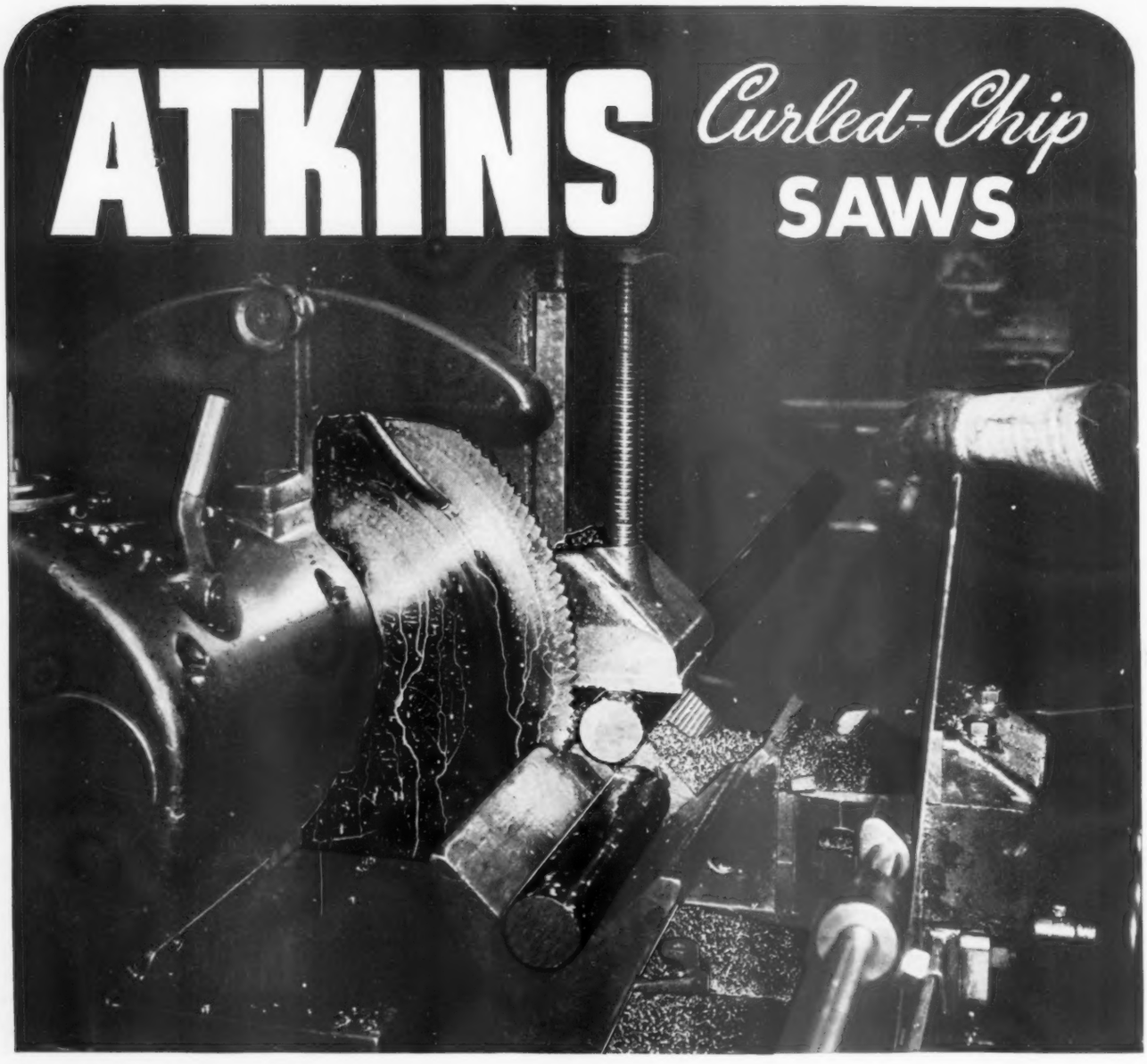
*Address*_____

*City*_____ *State*_____

WALWORTH 1842 1942 VALVES AND FITTINGS 100TH ANNIVERSARY

One hundred years ago Walworth first manufactured valves and fittings. Walworth has been manufacturing these products continuously ever since.

ATKINS *Curled-Chip* SAWS



Best for War Work Because They

TAKE LESS TIME FOR "TIME-OUT"

● The production loss caused by tool change-overs is one of those "necessary evils" that plague war plant production managers. It is no wonder, then, that Atkins Curled-Chip Saws have come as a god-send to shops and factories hard pressed for more and more output.

The capacity of these saws for sustained cutting without re-sharpening is tremendous. On armor plate, copper, brass, aluminum, iron, steel or any other metal, curled-chip teeth are on record as cutting double, triple and even more material between saw change-overs. In addition they take a deeper bite of metal than was practical hitherto, cutting with greater accuracy on shell stock, shell bands, gun mounts and many other armament parts.

For full data on these production-boosting saws, write for information on Atkins Engineered Cutting Service.

E. C. ATKINS AND COMPANY
446 S. Illinois St., Indianapolis, Indiana

ORIGINATORS OF THE *Curled-Chip* SYSTEM OF METAL CUTTING

When writing E. C. Atkins and Company please mention Purchasing

Among the ASSOCIATIONS

WM. E. MOORE HEADS SAGINAW VALLEY ASSOCIATION

William E. Moore, purchasing agent, Wickes Boiler Co., Saginaw, Mich., was elected president of the Saginaw Valley Purchasing Agents' Association, at annual meeting of the association held at the Bancroft Hotel in Saginaw. Mr. Moore succeeds John R. Clayton of the Defoe Boat Works, Bay City, Mich., who will serve as national director for the local body. Other new officers are: Vice president, John Horton, Dow Chemical Co., Bay City; secretary, Alden Kaylor, A. T. Ferrell Co., Saginaw; treasurer, Samuel E. Quinn, Dow Chemical Co., Midland. Ernst L. Reichle was chairman of the program committee.

CENTRAL ONTARIO BRANCH ELECTS 1943 OFFICERS

Albert Brubacher, Purchasing Agent, the Breithaupt Leather Co. Ltd., was elected Chairman of the Central Ontario Branch Hamilton Association, Council of Canadian Purchasing Agents' Associations, for 1943. Harold E. Lachman, The Dominion Life Assurance Co., was elected Vice Chairman, and Allan G. Henderson, Scroggins Shoe Co. Ltd., was elected Secretary Treasurer. Executive Committee: Norman E. Webb, Guelph Paper Box Co. Ltd.; Melvin J. Murphy, Eastern Steel Products Ltd.; Harry G. Hagey, Canadian Office & School Furniture Ltd.; Harold S. Levandusky, Newlands & Co. Ltd.; L. W. Shelley, John Forsyth Ltd., and A. J. Thaler, Kitchener Public Utilities. H. L. Anderson, Dominion Electrohome Industries Ltd., was made National Director.

REECE NEW CHAIRMAN OF NIAGARA PENINSULA ASSN.

Keyth C. Reece, Purchasing Agent, Canadian Carborundum Co. Ltd., was elected Chairman of the Niagara Peninsula Branch Hamilton Assn., Council of Canadian Purchasing Agents' Associations, for 1943, at recent meeting of the Peninsula Branch. Stewart J. Walters, Canada Foundries & Forgings Ltd., was elected Vice President; George D. Qua, Niagara Plumbing Supply Co. Ltd., Secretary-Treasurer; and John A. Joyce of Alliance Paper Mills Ltd., was made National Director. The new Executive Committee includes A. R. Draper, North American Cyanamid Ltd.; C. H. Randall, Atlas Steels Ltd.; W. W. Jefferson, Commonwealth Electric Corp. Ltd.; George S. Green, Provincial Paper Ltd.; and Al Gasbarine, Engineering Tool and Forgings Ltd.

J. C. ANDREWS BECOMES PRESIDENT OF CONN. ASSN.

J. C. Andrews, Purchasing Agent, American Hardware Corp., New Britain, Conn., was elected president of the Connecticut State Purchasing Agents Association, at its recent annual meeting in

J. C. Andrews, President, Connecticut State Purchasing Agents' Association

Ansonia. Other new officers elected include:

First Vice President, L. A. Fagan, Connecticut State Department of Health, Hartford.

Second Vice President, H. M. Greist, Jr., Greist Manufacturing Co., New Haven.

Secretary, F. A. Harvey, Ansonia O & C Company.

Treasurer, H. B. Donovan, Case, Lockwood & Brainard Co., Hartford.

National Director, H. W. Schwartz, Robertson Paper Box Co., Norwich.

The new Executive Committee is made up of: Harold J. Lemkin, Derby-Shelton, DeJur Amsco Corp.; R. Bingham, Meriden-Wallingford, International Silver Co.; P. F. Jerome, New London, Connecticut Power Co.; William Horowitz, New Haven, Botwinik Bros., Inc.; F. C. Esser, Bridgeport, Bryant Electric Co.; W. J. Roemer, Waterbury, the Bristol Company; F. W. Holden, Hartford, Rourke-Eno Paper Co., Inc.; and P. G. Miles, New Britain-Bristol, the Sessions Foundry Company.

The nominating committee was composed of J. G. Gunther, W. M. Saunders, Coleman Phillip, R. C. Swanton, P. F. Jerome, D. W. Williams, C. V. Chapin, and F. G. Space, Chairman.

H. B. COLEMAN HEADS HAMILTON DISTRICT OFFICERS SLATE

H. B. Coleman, Purchasing Agent, Canada Machinery Corp., Ltd., Galt, Ont., heads the slate of officers for 1943, submitted by the nominating committee at the November meeting of the Purchasing Agents' Association of Hamilton Assn., Council of Canadian Purchasing Agents' Associations, held in the Royal Connaught Hotel. Other nominees include: Vice President, J. H. Burkholder, Dominion Foundries & Steel Ltd.; Vice President, P. A. Walker, Canadian Westinghouse Co. Ltd.; Treasurer, E. M. Fletcher, Robinson's Industries, Inc.; Recording Secretary, J. F. Stephenson, Kraft Containers, Ltd.; and Corresponding Secretary, R. J. Allan, the Wallace Burns Co., Ltd.; Executive Committee nominees of whom three are to be elected, include the following: R. W. Cross, Hamilton Foundry Co.; D. R. Elwood, Gypsum Lime & Alabastine Co., Ltd.; E. R. Johnson, United Carr Fastener Co.; O. D. Southwick, National Steel Car Corp. Ltd.; and R. F. Witton, N. Slater Co., Ltd.

The nominating Committee consisted of G. A. Ireland, National Paper Goods, Ltd., Chairman; Bernard H. Yardley, the Stanley Works of Canada, Ltd.; and Donald A. Wilson of Canadian Westinghouse Co., Ltd.

USE CHRISTMAS PARTY FUNDS TO FURNISH WARD

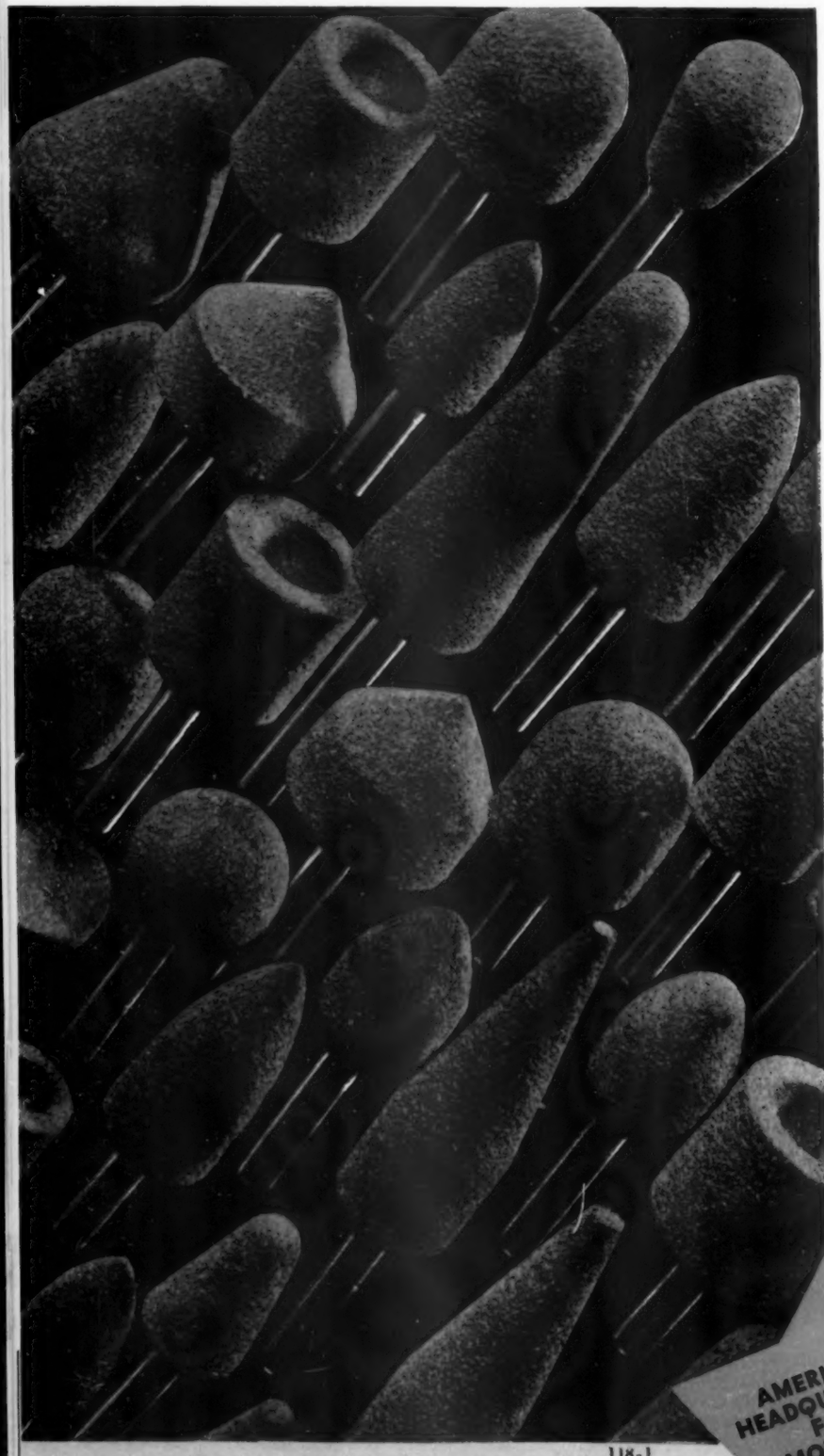
This holiday season the funds usually spent for an annual Christmas party by the East Bay group of the Purchasing Agents' Association of Northern California, Oakland, Calif., are being used to furnish a sun-room in one of the wards, Oak Knoll Naval Hospital. The committee in charge of this worthy action has installed furniture and a radio, hung appropriate pictures on the wall, and supplied magazines, cards and an assortment of games. It is planned to install a ping-pong table soon.

LEHIGH VALLEY ASSN. HOLDS DINNER-DANCE

Highlighting the activities of the Lehigh Valley Purchasing Agents Association during the year, the annual dinner-dance held in the Hotel Americus, Allentown, Pa., December 4, proved a highly enjoyable affair. Hundreds of members from all sections of the Lehigh Valley and guests from other associations including those of Philadelphia and New York took part in the festivities ably scheduled under the guidance of Chairman R. T. McClarin of Bethlehem and his committee.

STRATEGIC

As a Direct Hit on An Aircraft Carrier



We have fixed our sights. Our entire set-up is revolutionized. Now we concentrate on Mounted Wheels and Vitrified Grinding Wheels 3" and under in diameter — 24 hours a day, every day.

Our central location makes speedy deliveries certain.

- **Wheels flow off our production lines and into your plant in a swift, steady stream. Speed assured on all orders. Count on us to meet bottleneck emergencies.**
- **Valuable man hours saved in your plant. There is no waiting for wheels.**
- **Customers — new wartime and old — get the same high quality that has been maintained since we introduced the first Mounted Wheels 45 years ago. We can take care of all your requirements for wheels 3" and under.**

You should have our new catalog which illustrates in actual colors and sizes the largest line of Mounted Wheels made. Send for copy today.

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AMERICA'S HEADQUARTERS FOR MOUNTED WHEELS

CHICAGO WHEEL & MFG. CO.
118 S. Aberdeen St., Chicago, Ill.
Canadian Distributors: Canadian Trade Corp., Ltd.
1332 Williams St., Montreal

TORONTO ASSOCIATION REPORTS SEVEN NEW MEMBERS

A. E. Wilson, Purchasing Agent, Toronto Envelope Co. Ltd., chairman membership committee, Toronto Association of the Council of Canadian Purchasing Agents' Association, submitted the applications of seven new applicants for membership at a recent meeting, all of whom were approved for membership. These included: E. R. Mitchel, Addison Industries Ltd.; J. Urquhart, James R. Kearney Corp. of Canada, Ltd.; J. R. Millar, Canadian Synthetic Rubber Ltd.; G. S. Middough, Canadian Oils Co., Ltd.; H. B. Carlaw, Canada Varnish Co., Ltd.; F. W. Smalley, Jas. Morrison Brass Manufacturing Co., Ltd.; and, G. W. Wells, Massey-Harris Co., Ltd.

In addition, Mr. Wilson reported receipt of applications from F. E. Cannon, Meredith Simmons & Co. Ltd., J. C. Thrush, Lincoln Electric Co. of Canada, Ltd.; F. J. Bell, Amalgamated Electric Corp., Ltd.; Fred Halstead, The Guelph Spring & Axle Co., Ltd., and N. R. MacDougall, Neon Products of Western Canada.

MILWAUKEE PURCHASING AGENTS DISCUSS CONTROLLED MATERIALS PLAN

Under the leadership of Joe Bode, Purchasing Agent, Briggs & Stratton Company, Milwaukee, the Milwaukee Association of Purchasing Agents had a general discussion of the new Controlled Materials Plan, at its meeting Tuesday, December 8, in the Elks Club. L. K. MacElhaney of the WPB took part in the meeting.

TOLEDO ASSOCIATION HOLDS ANNUAL YULETIDE PARTY

The Purchasing Agents Association of Toledo held its annual Yuletide party at the Toledo Club, December 18. A number of guests from Cleveland, Chicago and Detroit were present to enjoy the festivities. Arrangements for the affair were in charge of Henry Poll of the H. Poll Electric Co., chairman, assisted by J. P. Meyer, Hixon-Peterson Lumber Co., Walter Noe of the Libbey Glass Company, and Gordon S. Yost of the Toledo Scale Company.

CENTRAL NEW YORK HOLDS CHRISTMAS PARTY

December 17th brought members of the Syracuse & Central New York Purchasing Agents' Association a brief respite from the headaches of PRP, CMP, priority and other regulations, for on that date they held their 18th annual Christmas party at the Onondaga Hotel, Syracuse. Members and associates and salesmen guests enjoyed an evening of entertainment featured by a floor show-extraordinary.

SOUND-MOTION PICTURES AT NEW ORLEANS MEETING

Two sound-motion pictures whose presentation was arranged for by Chairman Fred E. Lind of the New Orleans Purchasing Agents Association's program

(Continued on page 110)

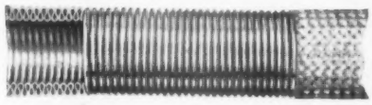
FLEXPEDITE

Your Conversion—Assembly—Production with

REX-WELD

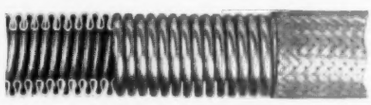
Flexible Metal Hose

Rex-Weld Hose—Annular Corrugations



RW-80 Unbraided — RW-81 Braided

Rex-Weld Hose—Helical Corrugations



RW-90 Unbraided — RW-91 Braided

General Data

	STEEL	BRONZE
Sizes	To 4" I.D.	To 4" I.D.
Pressures	To 14,500 p.s.i.	To 14,500 p.s.i.
Temperatures	To 1000° F	To 450° F.
Lengths	To 50′	To 50′

Use Chart

	*STEEL	BRONZE
Saturated Steam		✓
Superheated Steam	✓	
Sulphur Bearing Oil	✓	
Oxygen		✓
Ammonia	✓	
Carbon Dioxide	✓	
Sulphur Bearing Grease	✓	
Critical Vibration		✓
Non-Sparking		✓

*Protective Coatings Can Be Applied for Corrosion Protection (To Conserve Critical Copper Bearing Alloys).

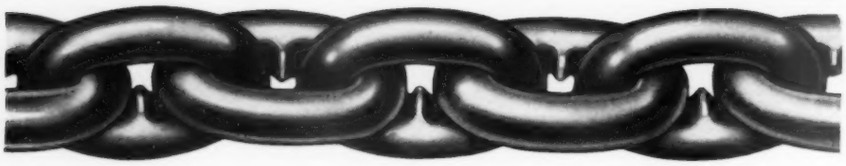
Couplings: REX-TITE Mechanical (Re-attachable) Couplings; Solder Couplings; Brazed and Welded Couplings and Flange Assemblies for Rex-Weld Flexible Metal Hose.

Ask for Engineering Recommendations

CHICAGO METAL HOSE CORPORATION

General Offices: MAYWOOD, ILLINOIS

Factories: Maywood and Elgin, Ill.



STRONG LINKS

in the world's greatest production schedules

Almost overnight, American industrial manufacturers have achieved stupendous production records that make the Axis shudder. Strong links in reaching the world's greatest production schedules are men, machines and equipment.

Herc-Alloy Steel Chain with the patented "Inswell" electric weld is helping America maintain these fast schedules by providing safety and efficiency in the transportation and handling of materials. Fabricated from a special analysis heat treated alloy steel, the short, stubby links bridge square corners without gouging or kinking. Write for the facts on Herc-Alloy Chain, today. Descriptive catalog No. 44 will be sent on request.

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STEEL CHAIN

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INVEST REGULARLY IN VICTORY—BUY WAR BONDS AND STAMPS

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COLUMBUS-McKINNON CHAIN CORPORATION

(Affiliated with Chisholm-Moore Hoist Corporation)

120 FREMONT AVENUE, TONAWANDA, NEW YORK

BRANCH OFFICES: NEW YORK • CHICAGO • CLEVELAND

When writing Columbus-McKinnon Chain Corporation please mention Purchasing

(Continued from page 109)

committee, proved a timely and interesting diversion for the members at their December meeting. The first was entitled "News Parade of 1942", an authentic release on important world events during 1942. The other was an official picture released by the Office of War Information, on "Safeguarding Military Information".

MONTREAL PURCHASING AGENTS INSPECT HUGE VICKERS PLANT

Members attending the November meeting of the Purchasing Agents' Association of Montreal, which was held in the Mount Royal Hotel, had the rare privilege of touring the huge plant of Canadian Vickers, Ltd., which is said to be the only plant that manufactures everything for the equipping of a ship from keel to crow's nest. James Barnes of Darling Brothers, who is chairman of the association's plant visitation committee, had the honor of arranging for this tour with company executives and Vickers Purchasing Agents Harold R. Cole, J. J. Lahue, E. A. MacLachlan and George F. Johnson.

RHODE ISLAND CHRISTMAS PARTY FEATURES NEW NOTE

The Rhode Island Purchasing Agents' Association had a stag party for members and guests at the Pawtucket Golf Club, Providence, December 17. This was the annual Christmas party, and invitations were extended this year to male guests. Diversified entertainment including a turkey raffle featured the festivities. The committee in charge of the affair, headed by Chairman E. A. Taylor, also included E. T. Aldham, K. W. Douglas, T. P. McCartin, W. F. Miller, H. R. Smart and Arnot Hirst.

TWIN CITY BUYERS HEAR F. B. I. SPEAKER

The December meeting of the Twin City Association of Purchasing Agents, held in the Minneapolis Athletic Club December 9th was featured by a talk by a member of the Federal Bureau of Investigation on F. B. I. activities in wartime. In addition to seasonal holiday entertainment the group repeated its Christmas gift stunt of former years, each member bringing some small gift, not too costly, for interchange with other members.

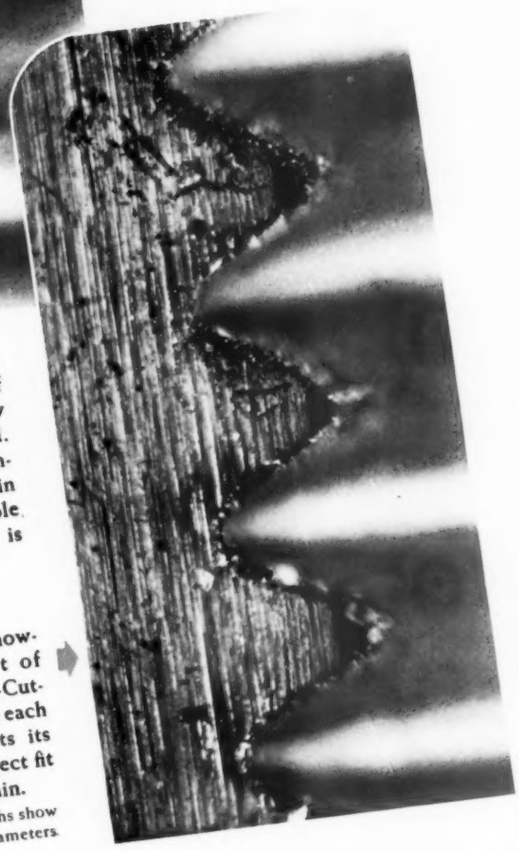
NORTHERN CALIFORNIA HAS DIVERSIFIED DECEMBER PROGRAM

Variety in business and holiday season meetings characterized the December get-togethers of the Purchasing Agents Association of Northern California, meetings subsequent to December 20 being cancelled. At the San Francisco meetings, the principal speakers were Carl Eicker and Myron K. Dutton, War Production Board representatives, on the "Controlled Materials Plan", and S. K. Burke, assistant vice-president, Southern Pacific Company, spoke on "The Pacific Coast Wartime Railroad Problem". December 17 was given over to luncheon

(Continued on page 112)

Compare the Fit of these two Threads!

Photomicrograph showing typical loose fit of ordinary machine screw in pre-tapped thread. Due to necessary manufacturing tolerances in screw and tapped hole diameters, a tight fit is seldom secured.



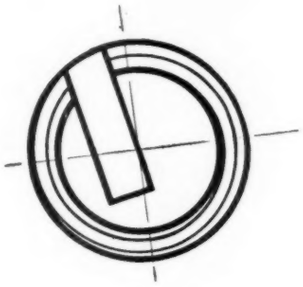
Photomicrograph showing snug, tight fit of Shakeproof Thread-Cutting Screw. Because each screw actually cuts its own thread, a perfect fit is always certain.

Both photomicrographs show enlargement of 20 diameters.

TYPE T
Shakeproof Thread-Cutting Screw for all Metal Applications

This screw not only speeds assembly by eliminating tapping...it also provides a tighter, stronger fastening!

Shakeproof Thread-Cutting Screws have two definite advantages that are important to the assembly of war equipment; they eliminate the need for taps and tapping—thus saving vital man-hours, and they provide a stronger, tighter fastening—thus assuring improved resistance to vibration. Try this better screw on your products. Write today for a handy kit of assorted testing samples!



The Slot Does It!

The end of the screw is slotted off-center to present an acute serrated cutting edge to the work. The chips produced are directed away from the cutting edge into the slot, which assures easy, fast driving.

SHAKEPROOF INC.
"Fastening Headquarters"

Distributor of Shakeproof Products Manufactured by ILLINOIS TOOL WORKS
2501 North Keeler Avenue, Chicago, Illinois
Plants at Chicago and Elgin, Illinois
In Canada: Canada Illinois Tools Ltd., Toronto, Ontario

SHAKEPROOF THREAD-CUTTING SCREWS

What is tougher than tough?

Sounds like the poser the physics professor puts to his class, "If an irresistible force meets an immovable body, what happens?" Only this one is simpler.

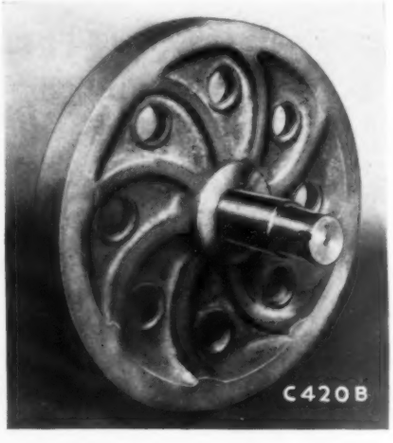
Malleable iron, as ferrous metals go, is "tough" in the sense that it is ductile and will bend before breaking. But real toughness is more than mere ductility — it's the *combination* of high ultimate strength (125,000 pounds in a machined 13% manganese steel test bar), plus a low yield strength (40,000 pounds) and a high elongation (50%) before fracture.

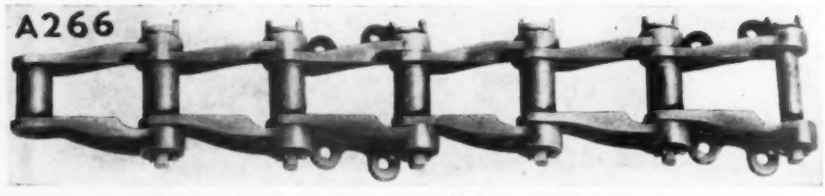
Their toughness alone would qualify austenitic manganese steel castings for many of the strenuous duties they discharge, but they have another invaluable property. More than any other steel, they increase in hardness on the wearing surfaces under repeated impacts and pressure; to as much as 550 Brinell in the severest service.

You have, then, a combination of properties in genuine manganese steel that enables a conveyor chain, sprocket, gear, sheave or wheel to stand up under destructive stresses and at the same time to resist the attrition of abrasive materials. No wonder "The Toughest Steel Known" often lasts ten times as long as ordinary ferrous metals!

The surface hardness induced by cold-working is self-renewing, so long as the service continues—as the hard skin wears away, another develops without affecting the toughness of the body metal. Accordingly, a properly applied manganese steel casting retains its useful properties to the end—and it *does* wear out at last.

So the answer to "What is tougher than tough?" is tough-hard manganese steel — and it's also the answer to innumerable equipment maintenance problems. Catalog 59 will give you 64 pages of facts and pictures concerning "The Toughest Steel Known."





Copper mold machine track wheel (C420B) with pressed-in trunnions and one of many types of manganese steel conveyor chain (A266).

If we lose the war, the victor will seize your scrap in a hurry!

Amsco

AMERICAN MANGANESE STEEL DIVISION OF THE AMERICAN BRAKE SHOE & FOUNDRY CO.

Chicago Heights, Illinois

FOUNDRIES AT CHICAGO HEIGHTS, ILL.; NEW CASTLE, DEL.; DENVER, COLO.; OAKLAND, CALIF.; LOS ANGELES, CALIF., ST. LOUIS, MO.
OFFICES IN PRINCIPAL CITIES

Genuine Manganese Steel, "The Toughest Steel Known"
Chromium-Nickel Alloy Castings for heat and corrosion
Power Shovel Dippers. Dredge and Industrial Pumps
Welding Materials for reclamation and hard-surfacing

(Continued from page 110)

and thirty minutes of fast entertainment "to put the members in the mood for the holiday season." The East Bay Group found a sound motion picture "Trees and Homes", presented by the Weyerheuser Sales Company, of much interest, and likewise a discussion "The Operation and Mechanics of a Submarine" by D. V. Daniels, retired naval lieutenant. The December 15 luncheon was given over to sheer relaxation and entertainment.

On December 20, the Nineteenth Annual Christmas Party of the Association was held in the Gold Ballroom, Palace Hotel, San Francisco, where dinner was followed by a variety of entertainment, and Santa Claus and gifts for the children. Arthur R. Woodman was chairman of the arrangements committee.

HEAR TALK ON MIDDLE EAST AT NEW ORLEANS MEETING

Colonel John N. Hauser, Adjutant General of the U. S. Army was the principal speaker at the monthly meeting of the Purchasing Agents Association of New Orleans, held in the St. Charles Hotel, December 14. He gave the Crescent City Purchasing Agents a vivid picture of the "Near and Middle East", now the cynosure of world wide interest incident to war activities.

CONTROLLED MATERIALS PLAN DISCUSSED AT SPRINGFIELD

Following an excellent dinner as guests of W. R. Rush of the Bretney Company, the Springfield (Ohio) Branch of the National Association of Purchasing Agents held a roundtable discussion on CMP under the leadership of Secretary H. C. Laybourne, at its December 9 meeting, Shawnee Hotel, Springfield.

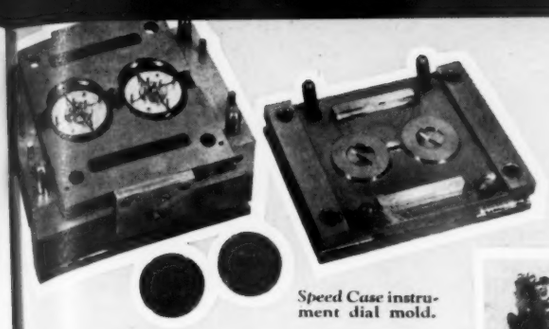
PITTSBURGH ASSOCIATION HAS CHRISTMAS MEETING

An advance installment of Christmas Good Will was meted out at the December Christmas meeting of the Purchasing Agents Association of Pittsburgh, held in the Cardinal Room of Hotel William Penn, December 15, where "Laughing at the Clouds" and special entertainment featured a closed meeting.

NEW YORK ASSOCIATION DISCUSSES CMP AND HOLDS CHRISTMAS PARTY

In a successful attempt to combine pleasure with business in these days of high pressure, the Purchasing Agents Association of New York held its regular monthly meeting and Christmas Party (an institution in the association for many years) on Tuesday, December 15, in the feeling that a little time off—after hours—would afford needed relaxation. Accordingly, the regular business program of the monthly meetings was dispensed with, and in lieu thereof, the members held a Forum Meeting at 4:30 P.M., at which William Arnstein, Regional Specialist on PRP and CMP, War Production Board, led a discussion on the operation of the

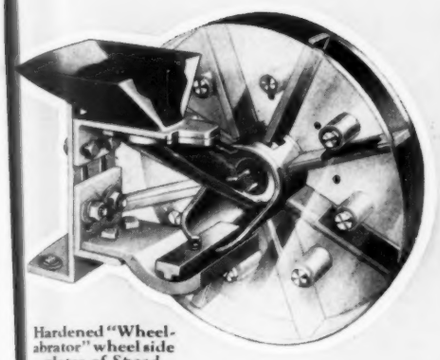
(Continued on page 114)



Speed Case instrument dial mold.

Speed Treat cartridge case "cupping" die.

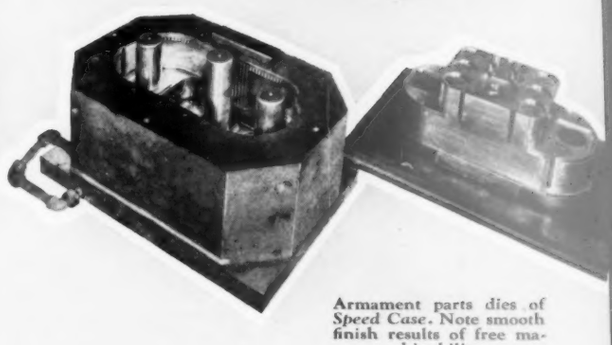
Cloverleaf die of *Speed Case*.



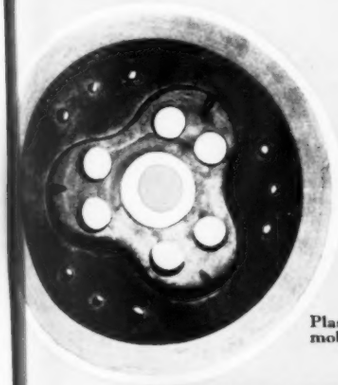
Hardened "Wheelabrator" wheel side plates of *Speed Case*.

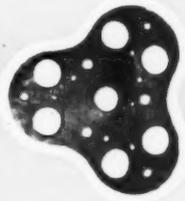
Speed Treat and *Speed Case* sprocket wheels.

A generator coupling disc for a diesel locomotive of *Speed Treat* Steel.

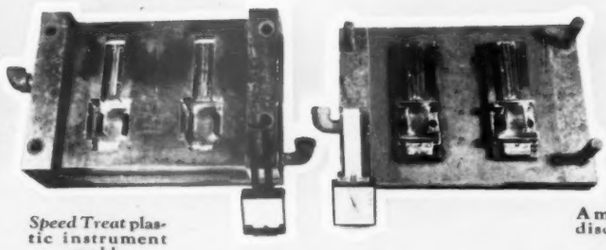


Armament parts dies of *Speed Case*. Note smooth finish results of free machinability.

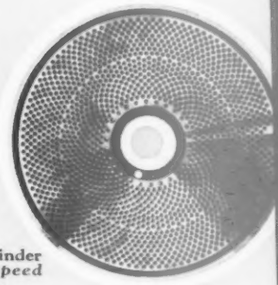




Plastic compression mold of *Speed Treat*.



Speed Treat plastic instrument mold.



A meat grinder disc of *Speed Case*.

SPEED TREAT STEEL

.40 to .50 Carbon Hot Rolled Plate

These two steels—*Speed Treat* and *Speed Case*—are saving time *now* when it counts the most. Check these advantages:

- √ **Cut machining time up to 53%. Greatly increase tool life.**
- √ **Quickly respond to heat treating—with minimum warpage.**
- √ **Available in standard gage hot rolled plates—flame cut to close tolerance—minimum waste—no short ends.**

Speed Treat is neither an alloy nor a tool steel—it is an open hearth .40 to .50 carbon steel. Case studies covering *Speed Treat* dies, die shoes, jigs, fixtures, gears, sprockets and fabricated machine tool parts show greatly upped production and a better-than-average service life.

Speed Case is an open hearth low carbon steel. It provides the fastest machining steel plate available. Due to its cleanliness, it is especially adapted to the manufacture of mechanical rubber and plastic molds.

Both steels are available in standard gage hot rolled plates and hot rolled and cold finished bars. Our engineers are prepared to tell you promptly whether these steels can replace those you have been accustomed to using. Bulletin 942 gives further details.

W. J. HOLLIDAY & CO.
Established 1856
Hammond, Ind. Chicago, Ill.
Indianapolis, Ind.

Distributed by

BEALS, McCARTHY & ROGERS
Buffalo, N. Y.

HORACE T. POTTS CO.
Philadelphia, Pa.

BROWN-WALES COMPANY
Boston, Mass.

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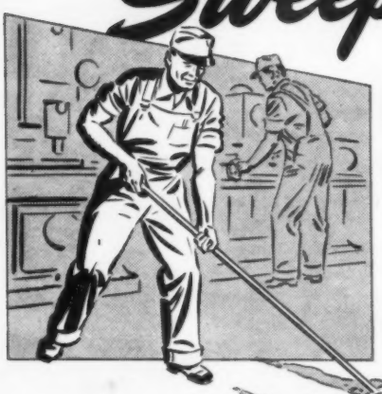
Akron, Ohio

PECKOVER'S, LTD.
Toronto 2, Canada

SPEED CASE STEEL

Low Carbon Hot Rolled Plate

Sweep up OIL and GREASE THIS EASY Safe WAY!



ELIMINATE FIRE HAZARDS

Carey

GREASE BALL

ASBESTOS SWEEPING COMPOUND

Classified as "Non-Combustible" by Underwriters' Laboratories, Inc.

NON-COMBUSTIBLE — Compounded entirely of non-burnable materials.

ABSORBENT—Soaks up oil and grease.

ECONOMICAL—Inexpensive; reduces cleaning costs. Available in 50-lb. bags.

Here at last—a sweeping compound that efficiently removes oil and grease deposits, yet does not create a fire hazard. Absorptive action; mildly abrasive. The ONLY product of the kind on current Underwriters' re-examination list classified as "Non-Combustible." Contains no acids or caustics; will not damage floors or injure shoes or clothing. Lessens accidents due to falls. Widely used in metal working, chemical and food plants, refineries, power plants, garages, filling stations, etc. Very economical—may be re-used until thoroughly oil soaked. Write for free sample and full information to Dept. 68.

HARMLESS—Contains no acids or caustics. Will not damage floors or shoes.

NON-SKID — Removes danger of accidents and possible law suits.

THE PHILIP CAREY MFG. CO.

Dependable Products Since 1873

LOCKLAND, CINCINNATI, OHIO

In Canada:
The Philip Carey Company, Ltd.
Office and Factory: Lennoxville, P. Q.

(Continued from page 112)

Controlled Materials Plan, under the direction of Chairman Merrill of the Forum Committee. At 6:15, business affairs were banished and the Purchasing Agents, their staffs and business friends sat down to a special dinner which marked the commencement of an evening of music, entertainment and good fellowship.

ODT REGULATIONS DISCUSSED BY CHICAGO GROUP

F. S. Keiser, Deputy Associate Director of the Chicago Office of Defense Transportation, was the principal speaker at the December 10 meeting of the Purchasing Agents Association of Chicago, Hotel Sherman. His subject was "The Relation of ODT to the Transportation Picture", which proved enlightening and informative especially in view of the general situation involving increased car loadings, car shortages, fuel oil rationing, and the effect of the rubber situation on truck transportation. The speaker has been intimately associated with transportation problems for the past 37 years.

PENNSYLVANIA GROUP HEARS TALKS ON TAXES AND OIL

The December meeting of the Purchasing Agents' Association of Northwestern Pennsylvania, was held at the Carver Hotel, Warren, Pa., December 3rd. In the afternoon, the Oil Buyers' group met with Mr. Dinges of the Office of Petroleum Coordination, New York City, the oil refineries of the district being well represented at the meeting. At the evening session, the Purchasing Agents listened to an interesting yet hard-to-take talk by D. Smiley of the Raymond Manufacturing Company, Corry, Pa., on the subject—"The Revenue Act of 1942". He went into considerable detail in explaining what individuals as well as corporations may expect in the way of taxes during the coming year.

LUMBERMAN ADDRESSES BIRMINGHAM MEETING

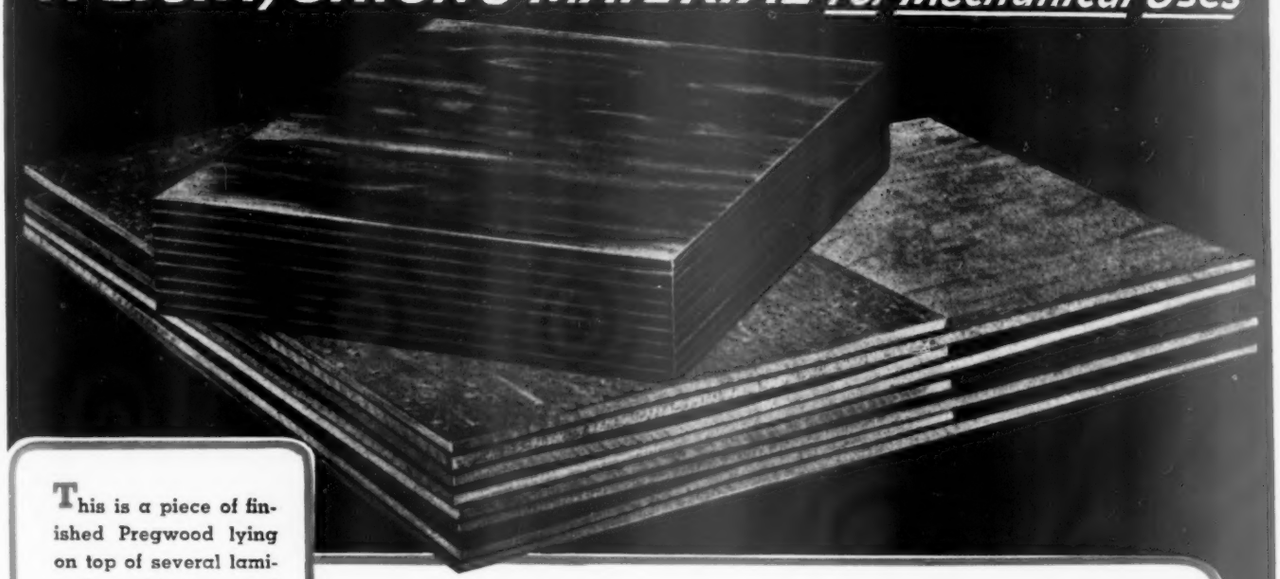
Thornton Estes, president of the Estes Lumber Co., gave a talk on "Workings of the Lumber Advisory Committee", at luncheon meeting of the Purchasing Agents Association of Birmingham, Thursday December 10, at the Redmont Hotel. "Speedy" Quick, Alabama Power Company, had charge of the meeting. The Birmingham group held its annual Christmas Party Dec. 21 at the Country Club.

WAR BOND PRIZES AT NEW ENGLAND PARTY

Members of the New England Purchasing Agents Association, Inc., Boston, held their annual free-dinner Christmas party the evening of December 22nd, featuring good fellowship, good entertainment and valuable prizes in the form of War Bonds and Stamps. Arthur Journay was Chairman of the Christmas meeting committee, assisted by Frank Craig, Dan Sullivan, Wy Randall, Carl Viau, Ray Remington and "Buck" Weaver.

"PREGWOOD" FORMICA

A LIGHT, STRONG MATERIAL for Mechanical Uses



This is a piece of finished Pregwood lying on top of several laminations of impregnated but uncured wood arranged to produce "Crossed Grain" Pregwood. The natural wood is reduced to one-half its original thickness when processed. In parallel grain Pregwood the laminations all run in the same direction.

PHYSICAL PROPERTIES OF PREGWOOD	CROSSED GRAIN	PARALLEL GRAIN
Specific Gravity	1.34	1.34
Tensile Strength PSI	12,000	30,000
Compressive Strength PSI	15,000	20,000
Modulus of Rupture in Bending PSI	18,000	35,000
Modulus of Elasticity in Bending PSI	2.0×10^8	2.7×10^6
Izod Impact	4 ft. lbs. per inch of notch	5 ft. lbs. per inch of notch
Shear perpendicular to laminations PSI	5,000	5,000
Shear Parallel to laminations PSI	4,000	
Moisture Absorption	6 per cent in 24 hours	6 per cent in 24 hours

Pregwood is a composite of wood veneers, thoroughly impregnated with thermosetting resin, compressed to half its original bulk, and cured into a hard, strong homogenious material.

It has great strength, stability of dimensions, and light weight—qualities much appreciated by the aviation as well as many other industries. The material is produced in sheets of varying thicknesses. It can be machined readily to dimensions with the same tools that are used for cast iron.

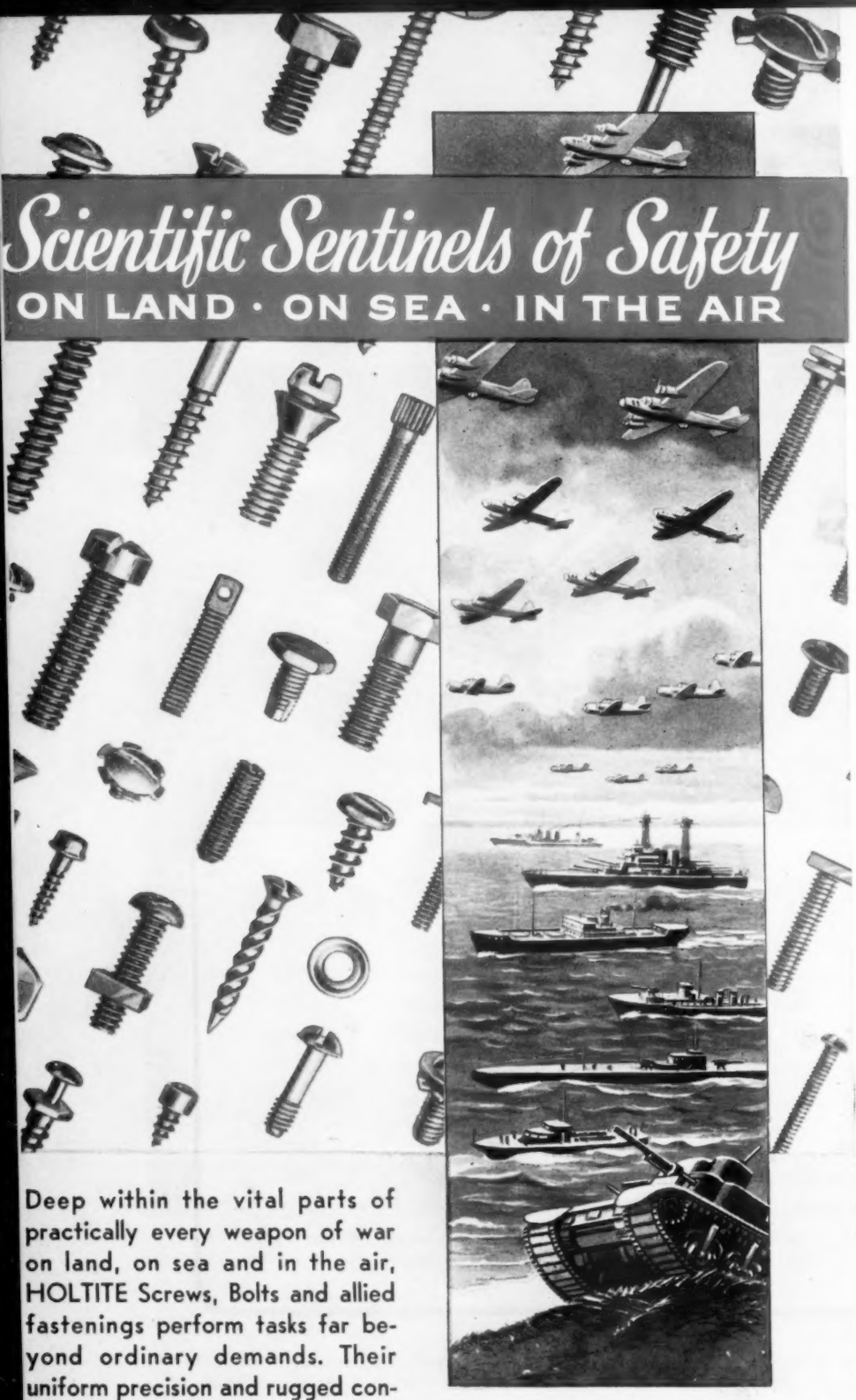
Pregwood can be successfully glued to wood. It is offered for propeller hubs, complete propeller blades, and for edge strips glued to wood in air frame construction so that the bolts and fastenings attached through the "Pregwood" will not work loose. Samples on request.

THE FORMICA INSULATION CO., 4665 SPRING GROVE AVE., CINCINNATI, O.

FORMICA

When writing The Formica Insulation Co. please mention Purchasing

Scientific Sentinels of Safety
ON LAND · ON SEA · IN THE AIR



Deep within the vital parts of practically every weapon of war on land, on sea and in the air, HOLTITE Screws, Bolts and allied fastenings perform tasks far beyond ordinary demands. Their uniform precision and rugged construction provide the time-saving application and faultless performance so essential in the war production program. From metallurgical control of raw material to final inspection, every scientific device and human skill is employed to make HOLTITE fastenings the most trustworthy Sentinels of Safety.

Continental Screw Co.

NEW BEDFORD
MASS., U.S.A.

We are 100% subscribed to more than 10% of Payroll Deduction. BUY MORE BONDS!

LOUISVILLE HAS CHRISTMAS DINNER MEETING

The Purchasing Agents Association of Louisville, Ky., held its annual Christmas dinner meeting at the Kentucky Hotel, Louisville, on December 15. The speaker for the affair was Prof. Charles W. Williams whose subject was "Looking Forward to the New Year". With Al Gorman at the piano, LeRoy Hobbs led the party in group singing, as part of the evening's relaxation.

DISCUSS CONTROLLED MATERIALS PLAN AT TRI-STATE MEETING

E. J. McClees and H. M. Little of the Priorities Division of the War Production Board were the speakers at the December 15 meeting of the Tri-State Purchasing Agents Association, whose membership includes Purchasing Agents of Southeastern Ohio, Kentucky and West Virginia. The program which had been arranged for by Vice President R. C. Jarrell, was held in the Kanawha hotel, Charlestown, W. Va.

WORCESTER COUNTY AGENTS HAVE YULE PARTY

Members of the Worcester County (Mass.) Purchasing Agents' Association held their annual Christmas party December 18th, which was featured by a good dinner, entertainment, and distribution of attendance prizes. Committee in charge of the affair was composed of James H. Carroll, Stephen H. Reando, Sigfried Eckstrom, Francis Jones, Stewart D. Wills, Howard J. Morse, William E. Mineard, and Edward C. Milde.

"FOUR WEEKS IN THE ARMY"

At the December 4th luncheon meeting of the Purchasing Agents Association of Oregon, Harold Cake, just returned from the army's school for business men, held the attention of these present with an interesting review of "Four Weeks in the Army".

ENEMY PATENTS TO BE LICENSED TO AID WAR EFFORT

More than 50,000 patents, aggregating hundreds of millions of dollars in value, seized from enemy nationals or taken over from nationals of enemy occupied countries will be vested in the office of the Alien Property Custodian by the end of the year, according to Leo T. Crowley, Custodian, Washington. These will be made freely available on license to any legitimate manufacturer "on a royalty-free non-exclusive basis for the life of the patent", he states, at a fee of $50 plus an additional $5 for each additional patent covered by the license. Exclusive licenses will not be issued. Existing American rights will be respected pending further investigation, but the Custodian reserves the right to issue additional licenses "if it appears that a broader use of the invention is essential to the war effort." Classified lists of enemy and non-enemy patents are now being prepared.

FAMOUS LIFE LINES

1 **AFRICA**—Here is one of the important links in the network of aerial "life lines" which Pan Africa and the Army's Air Transport Command have thrown across the Dark Continent—hacking landing fields out of tropical jungle under the most difficult conditions—but always getting through.

Pan American

2 **MARINE CORPS "CROCODILES"** have landed and have the situation well in hand, with their loads of reconnaissance trucks, tanks and scout cars, all with life lines — oil lines, fuel lines, brake lines, and many other tubing parts — made of Bundy Tubing.

Official Photograph U. S. Marine Corps

AT LAST, the "battle of production" is bearing its deadly fruit. At last, the flood of American-made weapons and equipment is making itself felt in combat on every front and continent.

Each day brings new stories of heroic action. Of tanks, jeeps, trucks and guns. Of bombers, fighters, transport planes and parachutes. Of submarines, PT boats, mine sweepers, carriers and destroyers.

It is a source of pride to us that Bundy life lines, of Bundy Tubing, are on the job in all these — and many more of America's fighting units.

Wherever fuel or lubrication lines are needed, wherever hydraulic pressure or refrigerants must be transmitted, or wherever mechanical or structural tubing is required, Bundy Tubing fills the need. Bundy Tubing Company, Detroit, Michigan.

Official Photograph
U. S. Army Air Forces

GLIDERS—War demands have added many sizes and types of tubing to the Bundy line. Among them is a structural tubing for gliders which is already winning favor among manufacturers of this new and important addition to American air forces.

Buy U. S. War Bonds — Get in Your Scrap

BUNDY TUBING

ENGINEERED TO YOUR EXPECTATIONS

BUNDYWELD double-walled steel tubing, hydrogen-brazed, copper-coated inside and outside. From Capillary sizes up to and including $\frac{1}{4}$" O. D. This double-walled type is also available in steel, tin-coated on the outside, and in Monel.

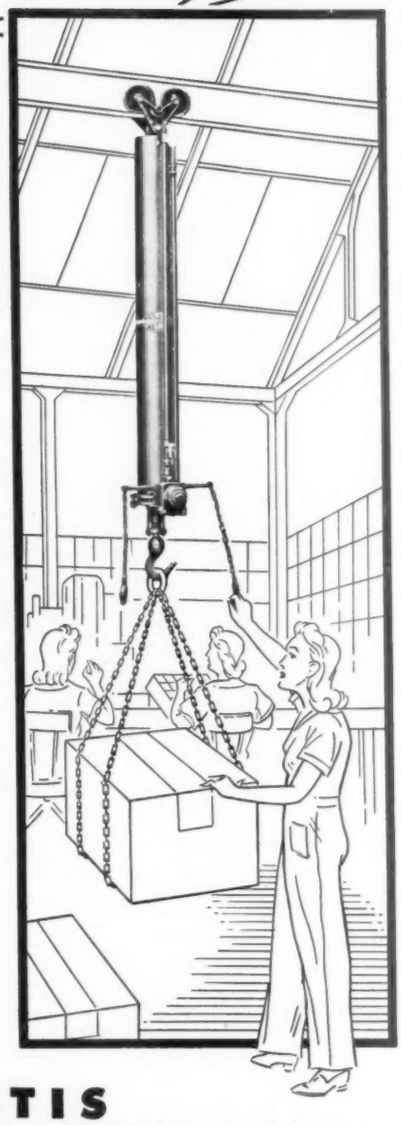
BUNDY ELECTRICWELD steel tubing. Single-walled — butt welded — annealed. Available in sizes up to and including 2" O. D. Can be furnished tin-coated outside in smaller sizes.

BUNDY "TRIPLE-PURPOSE" tubing. Double-walled, rolled from two strips, joints opposite, welded into a solid wall. Available in all Monel; all steel; Monel inside—steel outside; Monel outside—steel inside. Sizes up to and including $\frac{5}{8}$" O. D.

When writing Bundy Tubing Company please mention Purchasing

Where Women are Employed In Industry

Reduce Fatigue... Make Lifting Easy WITH CURTIS AIR HOISTS



If you are considering employing more women in your plant, you can convert most manual lifting operations, make tough jobs easy, and speed up your output with Curtis Air Powered Hoists.

Many heavy lifting jobs, formerly requiring male labor, may now be accomplished quickly and easily by women, using Curtis equipment.

Curtis Air Hoists provide these important advantages:

- Smooth, fast, accurate control of loads
- Low first cost — lowest operating expense
- Light weight — pendant, bracketed, or rope compounded types
- Immunity to abuse or overloads
- One-man or woman operation—finger-tip control
- Do not require skilled labor

Hundreds of war production plants have increased production efficiency, reduced worker fatigue, saved thousands of man-hours by solving many material hoisting problems with Curtis equipment. Write for full information and free booklet, "How Air Power Is Being Used in Your Industry."

CURTIS

ST. LOUIS • NEW YORK • CHICAGO • SAN FRANCISCO • PORTLAND

CURTIS PNEUMATIC MACHINERY DIVISION of Curtis Manufacturing Company
1908 Kienlen Avenue, St. Louis, Missouri

● Please send me your free booklet, "How Air Is Being Used in Your Industry," and further details concerning Curtis Air Hoists.

Name.....
Firm.....
Address.....
City.....State.....

AWARDED BULL'S-EYE FLAG

The twin plants of Barnes-Raymond Division of Associated Spring Corporation at Detroit and Ann Arbor, working independently of each other conducted War Savings War Bond drives which netted the impressive total of over 90% of employees pledging ten percent or more of each week's pay to the purchase of War Savings bonds. For this achievement they were awarded the Treasury Department's Bull's-eye flag.

RUBBER SPRING FOR AUTOS NOW IN COMBAT USE

An automobile spring which operates by rubber in torsion, has been developed by the B. F. Goodrich Company, and is now being used on certain U. S. amphibian combat vehicles. It consists of a steel cylinder and shaft with the space between cylinder wall and shaft filled with rubber. Either the shaft or cylinder is held in fixed position, and the other member connected to the wheels by arms, with all the springing accomplished simply by the twisting movement in the rubber. Test passenger automobiles equipped with the springs are reported to have run more than 70,000 miles without need for spring adjustment. The spring's design and installation are said to be featured by simplicity, and these qualities along with the absence of internal friction have proved it to be a superior suspension system.

COMMERCIAL GRADES OF CARBON TETRACHLORIDE DAMAGE FIRE EXTINGUISHERS

Practically the entire output of approved fire extinguishers is being taken by the Army, the Navy, and manufacturers with top priority ratings. Soda acid extinguishers are not being made. Foam extinguishers are being made only in limited quantity, and it takes a high priority rating to get them, and Carbon dioxide extinguishers are available only to those with ratings approaching the "triple A". Recharging materials and replacement parts still can be purchased without difficulty, according to the Safety Research Institute, and with proper servicing, existing approved equipment will last indefinitely. Attempts to economize with commercial grades of carbon tetrachloride for use in vaporizing liquid extinguishers are generally foiled by the resulting deterioration of the shell and interior mechanism of the extinguisher, due to the fact that commercial grades of CTC contain water, which reacts slowly with the CTC to form hydrochloric acid and it is the

(Continued on page 120)

Looking ahead with Asbestos

BLACKOUTS ARE ONLY A PASSING PHASE OF ELECTRICAL CONTROL

● If far-visioned men have their way, the post-war world will need—and use—more electrical power than a world at war.

In that tomorrow's world, K&M's Ebonized Asbestos is destined to continue its vital function of electrical control.

For K&M Ebonized Asbestos—asbestos fibre, binding cement and insulating compound molded under pressure—is an ideal material for electrical installations, all the way from huge switchboard panels to tiny switches. Ideal—because it can withstand severe electrical shock, vibration, temperature change; and can absorb high voltages without puncture.

Just now, such needs of war as fighting craft and war industries make it necessary for civilian production to wait awhile for K&M's Ebonized Asbestos. With the coming of peace, however, it will be generally available again—along with those new asbestos products which will emerge from K&M's constant research with Nature's strangest mineral.

* * *

Nature made asbestos;
Keasbey & Mattison, America's asbestos pioneer,
has made it serve mankind . . . since 1873

KEASBEY & MATTISON
COMPANY, AMBLER, PENNSYLVANIA

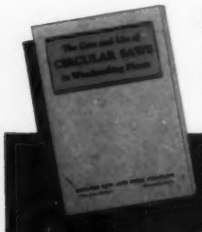
Makers of

asbestos-cement shingles and wallboards; asbestos and magnesia insulations for pipes, boilers, furnaces; asbestos textiles; asbestos electrical materials; asbestos paper and millboard; asbestos marine insulations; asbestos acoustical material; asbestos packings; asbestos corrugated sheathing and flat lumbers; asbestos-cement pipe for water mains

When writing Keasbey & Mattison Company please mention Purchasing

SIMONDS
RED CENTER
CIRCULAR WOODCUTTING SAWS
...controlled-quality products of SIMONDS 100% "self-contained" PLANT

The "Red Center" marks the saws that cut more lumber ... cut it straighter and smoother ... and run far longer without sharpening. That's because Red Center Saws are Simonds-controlled all the way from metallurgical laboratory to shipping platform ... ground, tensioned, set, and tested ... to give them a definite cutting edge over all other woodcutting saws. On rated orders, you can get prompt shipment of any type and size. And send for the free pocket-book, shown, on proper care and use of circular saws.



SIMONDS SAW AND STEEL CO.
BOSTON: 1350 Columbia Rd. ★ CHICAGO: 127 S. Green St.
SAN FRANCISCO: 228 First St. ★ SPOKANE: 31 W. Trent Ave.
SEATTLE: 520 First Ave. So. ★ PORTLAND, ORE.: 311 S.W. 1st Ave.

SIMONDS
Famous Family of Quality Cutting Tools

Bought Your Bonds this Week?

(Continued from page 118)

latter that does the damage. The vaporizing liquid furnished by extinguisher manufacturers is treated to remove all impurities and has important components added to depress the freezing point. "Approved" extinguishers are those which bear the label of the Underwriters' Laboratories or Factory Mutual Laboratories. All such extinguishers bear an instruction plate which carries directions for recharging and inspecting the equipment. Only when these directions are ignored will the extinguisher owner encounter difficulty.

UNIQUE AWARD FOR SHOP FOREMEN

That employes in the Shell Plant of American Car & Foundry Company have a highly-developed sense of humor was evidenced recently at the Foremen's Award meeting when two new trophies were awarded—one for shop cleanliness, and the other being a shop dirtiness trophy. The two trophies are illustrated. Results were immediate, for the foreman receiving the shop-dirtiness trophy declared that his department would never receive it again, and the next morning the shop was cleaned up in earnest.

TARDY PULLMAN CANCELLATIONS PRECLUDE REFUND OF FARES

The immutable law of demand and supply is the prevailing factor in the procuring of travel accommodations, and smart travelers act accordingly in making early reservations, according to Geo. A. Kelly, vice president of The Pullman Company. Mr. Kelly points out that when reservations are cancelled too late for resale of the space, refund of fares of unused tickets cannot be made under provisions of the tariff filed with the Interstate Commerce Commission.

COL. BROWNING ADDRESSES ILLINOIS MANUFACTURERS ASSOCIATION

Colonel Albert J. Browning, director, purchases division, Services of Supply, War Department, was the principal speaker at a luncheon sponsored by the Illinois Manufacturers Association, his subject being "Renegotiation of War Contracts." Col. Browning has been connected with the government in various capacities for the last two years. While serving as a dollar-a-year man he made several suggestions which simplified government purchasing and which have since been adopted as standard government pur-

(Continued on page 122)

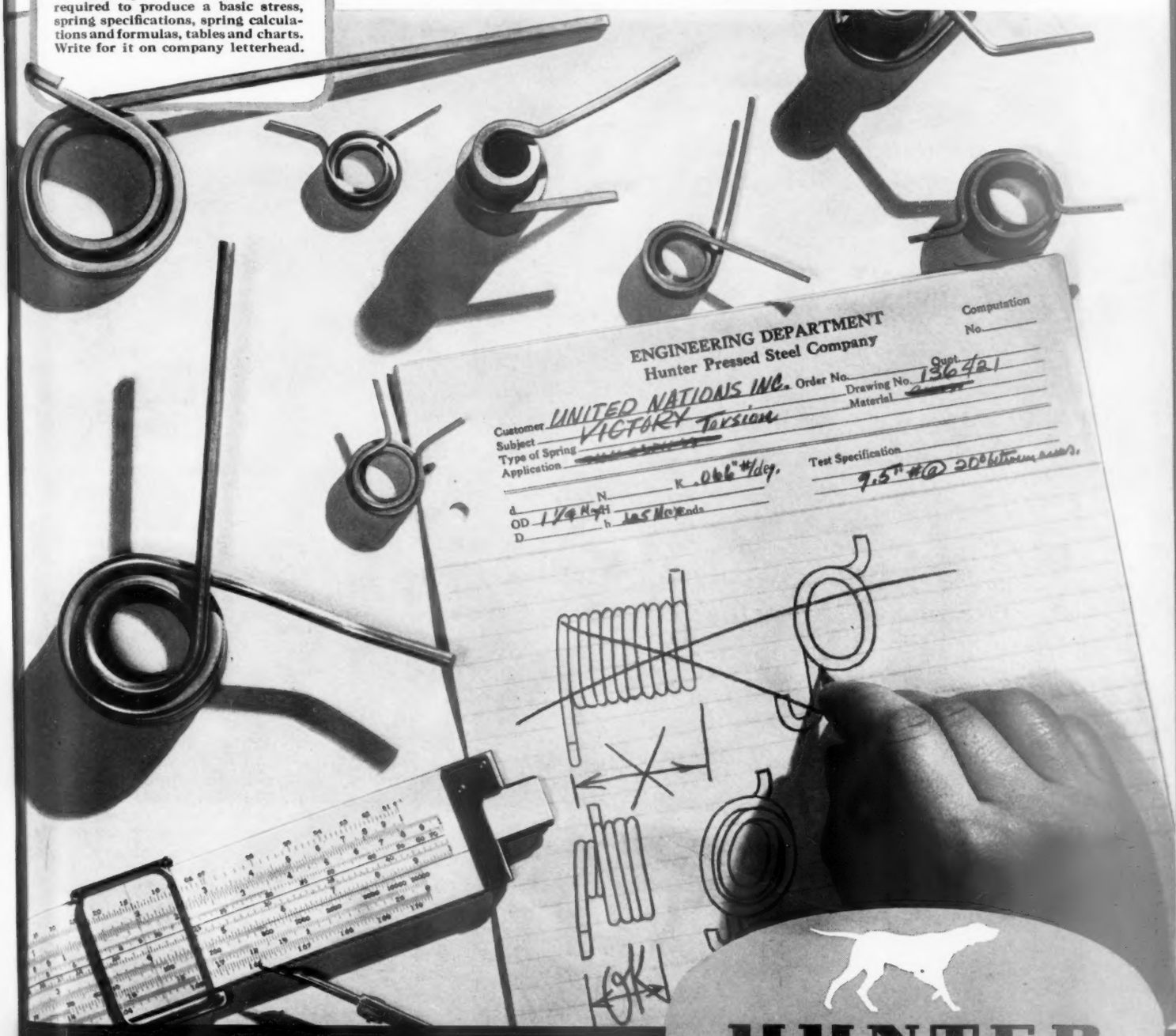
The SPRING that WINDS ITS TAIL on ITS BODY

A BOOK HITLER WOULD LIKE TO SUPPRESS
... Yours for the asking

SCIENCE IN SPRINGS... 40 pages about springs, carefully culled from our master data. Design procedures for springs, the "spring chart" for determining the load and deflection required to produce a basic stress, spring specifications, spring calculations and formulas, tables and charts. Write for it on company letterhead.

AT TIMES only a torsion spring will do. And only a unique torsion spring at that . . . such as one of the "double-coil" torsion springs below. You see, to achieve proper spring length where the retaining pin or shaft is short, these double springs are coiled over themselves like thread on a spool. Their advantages? Well, apart from their suitability to close quarters, they have other advantages over single-coil torsions, notably—stress is lower, or force is greater, or deflection is greater—assuming that the other two of the three factors are fixed in value. Then again, the double coil inspires a variety of pin locations to avoid interference. . . . Why do we point all this out? Simply to indicate the complexities of spring design and specification. There is only ONE right spring for the job—the one made possible by science in springs.

IN THE ARMY NOW...*Springs have gone to the front in a number of ways Hitlerito and his Nipponazis would like to know. If you need springs for fighting equipment, our men will be only too glad to make them or design and make them. Just say when!*



HUNTER
Science in Springs

HUNTER PRESSED STEEL COMPANY, LANSDALE, PENNA.

Completely Cold Forged

HOLO-KROME
FIBRO FORGED SOCKET SCREWS

are completely Cold Forged by a method patented and exclusively used by HOLO-KROME in the manufacture of these PRECISION MADE SCREWS.

GUARANTEED Unfailing PERFORMANCE

HOLO-KROME
fibro forged
SOCKET SCREWS
THE HOLO-KROME SCREW CORP., HARTFORD, CONN., U.S.A.

(Continued from page 120)

chasing procedure. He formerly was president of United Wall Paper Factories, Inc., largest wall paper manufacturers in the world, now also engaged in the production of miscellaneous war material.

PRECISE COLOR IDENTIFICATION AND UNIFORMITY OF COLOR ASSURED BY NEW COLOR STANDARD

A new color standard expected to eliminate much of the existing confusion in matching color, or even to accurately compare colors by telegraph, is announced by the American Standards Association. It is styled the American War Standard "Specification and Description of Color", its objective being to reduce to a common language the results of years of technical developments in the measurement of color, so that color can be specified in terms that mean the same to the engraver, ink, die, and paint maker, industrial finisher, chemist, printer, paper and textile manufacturer, and others interested in color.

Spectrophotometer, basic instrument for standardization of color.

The A. S. A. standard provides a language by which color may be described by means of three basic elements, either by using the physicist's "dominant wave length", "brightness", and "purity", or by using the psychologist's "hue", "value", and "chroma", and makes it possible to translate from either of these systems to the other at will.

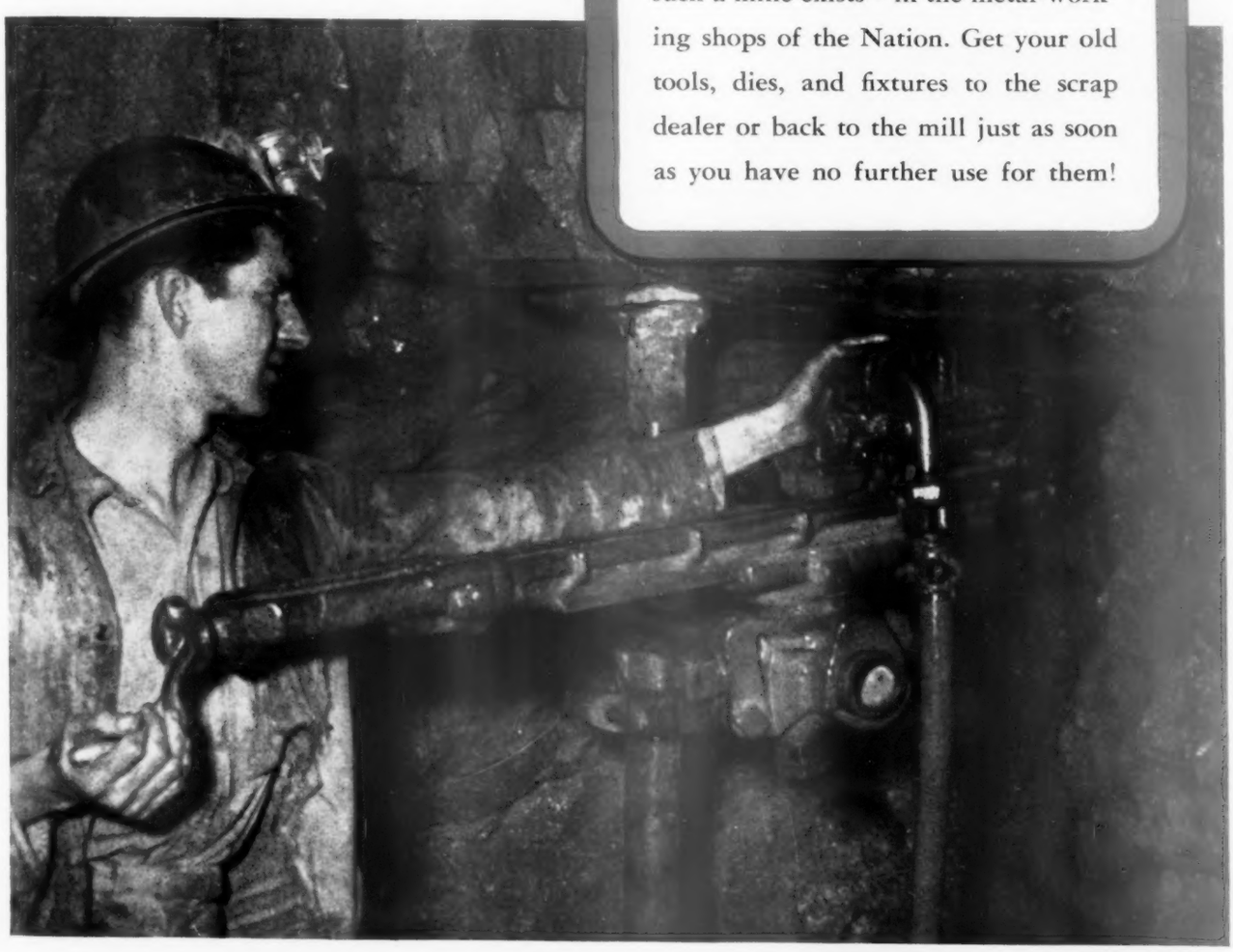
As the basis for this new color language, the standard recognizes two factors, the spectrophotometer as the basic instrument for the standardization of color, and the use of material standards (color samples) for the popular identification of color. The spectrophotometer, developed by the General Electric Company, uses an electronic tube to analyze the color in terms of the percentage of light reflected or transmitted by the color, that is, it measures color in terms of the wave lengths of the spectral colors. In the use of material standards (samples), the 1929 Munsell Book of Color which contains a really comprehensible book of color samples, is recommended. This book is featured by the only system of material standards that has been calibrated in terms of basic specifications.

The approved standard thus provides

(Continued on page 127)

A Mine OF PURE HIGH SPEED STEEL!

• MANY would consider the war almost won if a mine were discovered which, by some freak of nature, bore only high speed steel. The tungsten, molybdenum, vanadium, and other elements alloy steels contain are needed badly and needed *now* . . . In effect, such a mine exists—in the metal-working shops of the Nation. Get your old tools, dies, and fixtures to the scrap dealer or back to the mill just as soon as you have no further use for them!



NATIONAL

NATIONAL TWIST DRILL & TOOL DETROIT U.S.A.

TWIST DRILLS
REAMERS, HOBS
MILLING CUTTERS
COUNTERBORES
SPECIAL TOOLS

TWIST DRILL AND TOOL COMPANY

HOME OFFICE AND FACTORY—DETROIT, MICH.

Tap and Die Division—Winter Brothers Co., Wrentham, Mass.

Factory Branches • New York • Chicago • Cleveland • San Francisco • Distributors in Principal Cities

When writing Twist Drill and Tool Company please mention Purchasing

"Praise the Lord and Pass the Materials"

Procurement Offices Smash Critical Material Shortage Bottlenecks

Far up front in New England's battle of production is a small group of eight men and two girls whose motto is "Praise the Lord and pass the materials!" They are the Materials Redistribution Department of the New England regional office, War Production Board. Their job is to smash war plant bottlenecks arising from shortages of steel, copper, brass and other critical metals. The unit is one of 12 regional WPB field clearing houses that list the surplus of frozen stocks of manufacturers and then call on such inventories to fill the urgent needs of war plants which face imminent shut-downs or late deliveries for lack of relatively small amounts of metal.

In almost every case the pattern of an MRD crisis job is the same; a war plant nears the end of a job, runs smack into a shortage of only a few pounds of scarce, critical metal needed to complete a delivery or a launching, fails to locate the needed metal in all known sources of supply, and calls desperately on WPB's trouble-shooting MRD, which goes into action with files, phone calls, plant visits. In more than half the cases, they find exactly what's wanted, in the right quantity, and arrange for its transfer and sale. Frequently the search goes out of New England, and occasionally MRD is asked to carry on a search originating in some other WPB region. Here are a few more cases to illustrate this little known WPB service.

Case Histories

"Somewhere in New England" a builder of submarines needed only a small quantity of bronze shafting for a conning tower mechanism. The sub was ready for launching except for that. With all normal sources of supply exhausted, the shafting was found in New Hampshire, delivered the next day, and one more of Uncle Sam's fighting craft was launched on time.

A Southern Massachusetts war plant faced a stoppage in production of electrical switches urgently needed for Navy fighting craft, all for lack of 1300 pounds of brass sheets. Before the worst happened, the brass was found marking time in a New Hampshire shop. Delivery was made in three days; the Navy got its vital switches, and a layoff of war workers was averted.

A Western Massachusetts ordnance plant needed only five pounds of spring temper brass rod for a vital gun-firing mechanism; and, though brass rod of the needed kind is as scarce as a downhearted Marine on Guadalcanal, it turned up in a small Connecticut warehouse.

In Maine, a critical Maritime contract was filled on time solely because a patriotic New Haven manufacturer had taken the trouble to list with MRD his temporarily idle inventory of only 500 pounds of soft copper sheet which was all the Maine contractor needed. The job, by the way, was of vital importance in the battle of the Atlantic.

A New Hampshire maker of bomb hoists lacked only twenty bars of 16-foot mild steel to complete units urgently needed by the Army Air Corps. MRD found exactly the right material in a plant only twenty miles away.

Needed For Launching War Vessel

MRD works closely with and for the ordnance and procurement units of the Armed Forces as well. For example, a Pennsylvania shipyard had an important fighting craft ready to launch but lacked only two 20-foot lengths of steel driving shaft before sending it down the ways. Even the Navy's super efficient Bureau of Ships had searched the entire country without success before ringing in the Materials Redistribution unit, which located exactly what was wanted in Rhode Island and had it transferred in time to launch the vessel on time.

Some uncommon metals are urgently needed. A small machine shop in Connecticut, working frantically to meet Army deliveries of bomb nose mechanisms, ran fresh out of silver solder. MRD found the mere 25 pounds that was needed in the inventory submitted by a patriotic, war-hit Providence jewelry manufacturer.

And who would have thought that gal-

(Continued on page 127)

Guard precious war drawings with this special-process tracing cloth

Mistakes mean delays, and America's wartime job is to *speed* production! Give war jobs the best! That means specially-processed Arkwright Tracing cloth. Arkwright is made by a highly technical method on costly machines. The surface is clear, smooth – never "humpy." Ink lines won't spread or "feather" – nor crack or chip in drying. Years from now, drawings will be fresh and clear – truly permanent! Guard your war work this way. Arkwright Finishing Company, Providence, R. I.

Arkwright TRACING CLOTHS

AMERICA'S STANDARD FOR OVER 20 YEARS

How *KEENER EYES* Can Help to *SUSTAIN* Production*

In the human eye you'll find the answer to why proper lighting is so important, why it increases the speed and ease of seeing, thus conserving energy which otherwise is wasted in trying to see!

SEND FOR THIS FREE GUIDE

to make certain you are not overlooking important lighting factors essential to a sustained flow of increased output.

Contains complete data on how to approach, analyze and solve lighting problems. How to analyze the seeing task and determine lighting requirements. Valuable data on lighting as it relates to the problems of increased production, fatigue, accident reduction, greater utilization of floor space, 24 hour operation, etc. Also 21 ready to use solutions of lighting problems most frequently encountered in war production plants. Sent free of cost or obligation. Simply address your request to Benjamin Electric Mfg. Co., Dept. Y, Des Plaines, Illinois.

Experience in England and in our own production has proven the importance of doing everything possible to correct those conditions which adversely affect the endurance of men and women to sustain both the quantity and quality of output day after day and month after month.

High on the list of things to do to conserve employee endurance and to minimize fatigue is to insure KEENER EYES for every employee in the plant by providing the proper lighting for every seeing task!

Relationship of Lighting to Fatigue. Inadequate or improper lighting has been shown to be an important factor in employee fatigue.* *Because it takes energy to see!** The act of seeing involves thousands of tiny eye muscles, nervous and physical energy.* Time spent in trying to see, therefore, involves physical fatigue.* The greater the effort of the eye to see, the greater the drain on the body's energy reserve. Such fatigue in turn is reflected in reduced production rates and increases in errors, defects and spoilage.

Save Energy . . . Increase Health and Efficiency of All Employees. Provide proper lighting and the extra energy formerly required in trying to see can be converted into useful production energy, increasing the worker's ability to stay on the job for longer periods of time without detriment to his well being. Raise the lighting levels and older eyes are raised to the efficiency of young eyes . . . less drain results on their reserve energy . . . the extra light helps compensate for the older employee's loss of visual acuity.*

Reduce Accidents. Often closely allied to the fatigue problem is the problem of accidents.* Striking examples of the close relationship between the quality of the lighting and the accident frequency are not difficult to find. For example . . . in one plant, accidents decreased 11 percent after the old lighting system was replaced with a new one.*

Proper Lighting is Productive Lighting. Proper lighting is a production tool that is of vital importance in sustaining high output. The amount of light considered proper is determined by the seeing task involved. In general, the greater the difficulty in seeing the object or work, the higher the lighting levels required*. Most industrial and office tasks today require from 35 to 75 footcandles of illumination in comparison with today's estimated average of seven and one half footcandles. Productive lighting, however, is not just plenty of light. Equally important is the quality of the light provided.* It must be suitable in regard to direction, diffusion, glare and shadow.

Function of Lighting Equipment. It is the function of Benjamin Lighting Equipment to provide lighting of both proper quantity and quality required by the seeing task. Available for this purpose are Benjamin units of many types utilizing either Fluorescent, Incandescent or Mercury lamps as a light source. Typical solutions utilizing this equipment are given in the "Benjamin Specifications for Productive Lighting in War Plants" described at left.

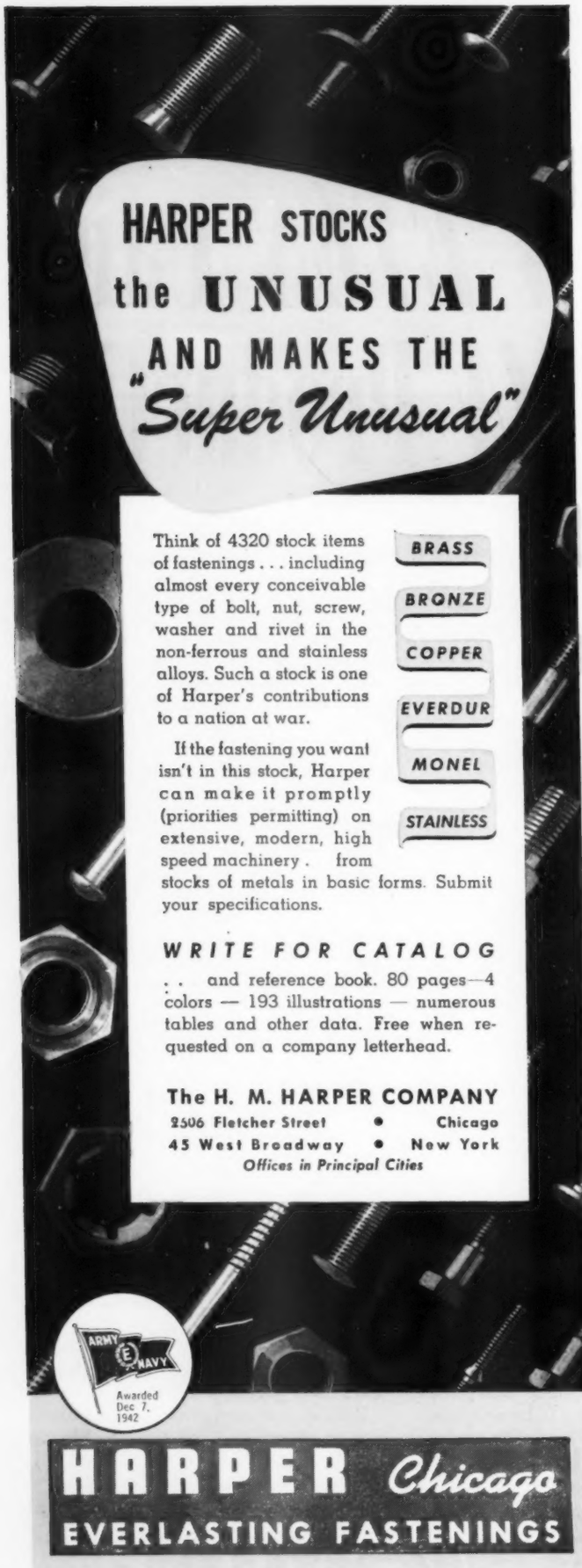
Request your copy, available now, without cost or obligation. Write Benjamin Electric Mfg. Co., Dept. Y, Des Plaines, Illinois.

* *Authority for many of the statements contained in this advertisement are based upon data contained in the publications of the Illuminating Engineering Society, the National Safety Council, the publication "Plant Efficiency" by the War Production Board and* American Recommended Practice of Industrial Lighting *approved by the American Standards Association.*

BENJAMIN TRADE MARK

WORLD LEADER IN INDUSTRIAL LIGHTING EQUIPMENT

Distributed Exclusively Through Electrical Wholesalers


HARPER STOCKS
the UNUSUAL
AND MAKES THE
"Super Unusual"
Think of 4320 stock items of fastenings . . . including almost every conceivable type of bolt, nut, screw, washer and rivet in the non-ferrous and stainless alloys. Such a stock is one of Harper's contributions to a nation at war.
If the fastening you want isn't in this stock, Harper can make it promptly (priorities permitting) on extensive, modern, high speed machinery . from stocks of metals in basic forms. Submit your specifications.
BRASS
BRONZE
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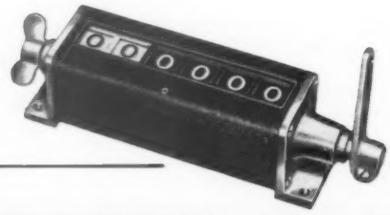
WRITE FOR CATALOG
. . and reference book. 80 pages—4 colors — 193 illustrations — numerous tables and other data. Free when requested on a company letterhead.
The H. M. HARPER COMPANY
2506 Fletcher Street • Chicago
45 West Broadway • New York
Offices in Principal Cities
ARMY E NAVY
Awarded Dec. 7, 1942
HARPER Chicago
EVERLASTING FASTENINGS

PUT THESE

"Bull Fighters"

on Your Production Machines

Fit your war-production machines with Veeder-Root Counting Devices that help to fight off the "bulls". . . from miscounts and guesswork . . . that charge in and rip up production schedules where no up-to-the-minute operating records are available. Veeder-Root facts in figures will help you to avoid shortages and over-runs . . . to see maintenance needs well in advance of danger-points . . . to control high-speed runs . . . and improve interdepartmental co-ordination toward final assembly. If your work counts heavily in the War Effort, then you can count on Veeder-Root. Write.



VEEDER-ROOT

Counting Devices

HARTFORD, CONNECTICUT

Offices in Principal Cities All Over the World

(Continued from page 124)

vanized wire netting of the chicken wire variety would be on MRD's SOS list? Yet 30 rolls of it in specialized sizes had to be loaded aboard an Army transport bound for a port in Alaska soon due to be ice-locked. A week's delay would have risked non-delivery of a common but now scarce supply of something pretty critical to our Alaska defense—chicken wire for camouflage! It was found in New England and shipped to San Francisco in time to meet the sailing date.

As America's production pace steps up, and the Army-Navy requirements change swiftly with the tides and techniques of war, this trouble-shooting unit steps out into non-metal fields. Witness "the case of the hornbeam rollers." Hornbeam is a scarce hard wood, ideally suited to making rollers necessary in loading heavy combat units like tanks on shipboard, and in invasion craft operations. A southern New England boat builder was desperately in need of this special wood to complete accessory equipment for landing craft. He found a good uncut stand of the hornbeam, thanks to some sleuthing by MRD, which arranged for its cutting and delivery—on time. Who knows but that the "case of the hornbeam rollers" had a conclusion in the succesful American invasion of Africa's shores!

This staff of eight men and two girls wouldn't know. Nor have they time to ponder. Their two interests are: first, to complete as many "impossible" metal searches as they can for the greatest number of war plants; and second, to secure as many inventories of surplus, frozen or idle materials as patriotic New England firms will report to WPB's district offices.

Purchasing Agents Can Help

How can YOU help in this battle of materials? Samuel B. Jones, Jr., former New England manager of American Rolling Mills Company, who heads the MRD, says that all that's needed is a telephone call to your nearest WPB office, advising what critical metals—steel, brass, copper etc.—you now have idle whether because it's surplus stock or frozen. No forms or formalities are needed and Priority Regulation No. 13 simplifies and expedites the sale or transfer. By the same token, distressed war plants that have exhausted all other supply sources, should call on MRD for this emergency materials service.

Since August, MRD has moved 1375 tons of critical metals, most of it varied, small-quantity stuff, processed and semi-processed. More than 600 "life-saving" transfers were involved, which is all the more remarkable when you know that the wanted metals are virtually on the "impossible" list, and that MRD is the very last lingering hope of those who call upon it.

To underscore the pressing need for New England industry's cooperation with MRD, Mr. Jones joints to two departmental slogans on tiny colorful posters affixed to his desk lamp. They read, "Save our soldiers—sell your steel" and "Send your steel to WAR—or there won't be any PEACE!"

(Continued from page 112)

two standards—a fundamental or primary standard, in terms of which any system of color samples can be calibrated, and a secondary or working standard consisting of a series of color samples that have already been calibrated in terms of the fundamental standard, viz: the samples in the 1929 Munsell Book of Color.

* * *

COAL INDUSTRY CONTRACTS FOR HUGE RESEARCH PROGRAM

Bituminous Coal Research, Inc., the research agency of the National Coal Association and the bituminous coal industry, has contracted with Battelle Memorial Institute, Columbus, Ohio, for the largest coal research program ever undertaken by the coal industry, according to Clyde E. Williams, Battelle director.

The program, which is a continuation of previous research, is under the supervision of Ralph A. Sherman, involves investigation in the application of coal to metallurgical processes, conservation by more efficient utilization in industrial and domestic power and heating plants, use of pulverized coal in drop forge furnaces, conversion of coal into fuel gas by chemical and physical means, smokeless methods of coal combustion thus utilizing practically all heat energy, and the development of power directly from coal by the use of pulverized coal as a fuel in internal combustion engines.

ETCHING STAMPS *for* CODE MARKING NOW MADE IN AN

Amazing New Material

Results of tests in actual production have shown that Matthews new "S-22" Synthetic outlasts the best rubber or other synthetic stamps from three to four times! The new "S-22" Synthetic is unaffected by acid etching inks.

Part marked with code symbols, by means of etching stamps. Hundreds of symbols to choose from.

Etching stamps are widely used for inspection stamping of metal parts and assemblies. Made in various styles to suit your marking application. The popular Peg & Pin Style illustrated is used where large volume inspection stamping is required.

Write for Bulletin S-Catalog 146

This valuable leaflet illustrates and describes the various styles of stamps available in the new "S-22" Synthetic. Write for your copy today!

JAS. H. MATTHEWS & CO.

3959 Forbes Street Pittsburgh, Pa.

Branch Plants
NEW YORK BOSTON
CHICAGO NEWARK
PHILADELPHIA SYRACUSE

District Sales Offices
DETROIT HARTFORD
CLEVELAND BIRMINGHAM

Markets and Living Changed by Chemistry

Dr. Charles Allen Thomas *

The half century it took the natural rubber industry to reach an annual production of 600,000 tons will be duplicated in one twenty-fifth the time by the chemical industry. Under wartime urgency, the chemical industry has been called upon to supply, in less than two years, enormous quantities of synthetic rubber raw materials. The goal is 1,106,000 tons by January, 1944, and the job will be done.

After the war, instead of natural rubber alone, we shall have numerous chemical elastomers to fit specific needs. These elastomers will all be test-tube creations, each tailored to order, and I confidently predict that synthetic rubbers will capture a great many markets in which the natural product formerly enjoyed an unchallenged monopoly.

The government has mobilized thousands of American scientists under a technological high command in Washington to work on new weapons of war and improve those we already have. In laboratories throughout the country investigations are going on behind closely guarded doors which may at any instant revolutionize the course of the war. The nucleus of such a technological high command, if maintained active during peace time, will probably constitute democracy's best assurance against a future Hitler.

The development of tetraethyl lead and other anti-knock chemicals has revolutionized motor fuels and motor design. In 1920 the average octane number of our motor fuels was around 65. Today aviation fuels are 100 or higher, and the day will soon dawn when automobiles and crash-proof planes made of light metals and plastics will be run on 150 octane fuel. Chemically synthesized lubricating oils will permit their motors to run at very high speeds, giving more power per unit of weight.

*Director, Central Research Laboratory, Monsanto Chemical Company. Abstract of talk at Sales Executives meeting in St. Louis.

Structural Plastics

The infant plastics industry has already invaded fields previously sacred to products such as metals, wood and stone. The mechanical engineer and the plastics engineer will get together and make tougher and more durable plastics that will be used in home building as well as for the structural parts of motor cars and planes.

One of the greatest beneficiaries of the chemistry of the future will be the farmer. Indeed, many of the raw materials of our chemical industry are being obtained and will be obtained in still larger quantities from our farms. Industrial utilization of the vast treasures of raw materials which the farm offers will be the answer to the farm problem, I believe.

Drugs, Vitamins and Hormones

Consider also the field of medicine. Here is a striking example of what can be accomplished by a better knowledge of chemistry. It has been said that the sulfa drugs mark one of the greatest advances in medical science in the past fifty years. Official reports from Pearl Harbor state that wounds treated with sulfa drugs healed quickly and cleanly and not a single arm or leg was lost because of infection. Various vitamins, hormones, and newer drugs which when used under doctor's orders cleanse our blood streams, are being developed and studied by hundreds of scientists.

Even food itself is being revised. A continuous stream of new foods is emerging from the chemical laboratories—concentrated, enriched, dehydrated, precooked, quick-frozen, synthetic as well as new plant and animal varieties. The amazing feat of getting four gallons of milk into a three pound paper bag is a reality. By dehydration, 27,000,000 pounds of potatoes can be reduced to 3,000,000 pounds. In an emergency, the American soldier can get three big meals out of a two pound package, including bread, beverage, meat and dessert for each meal. Unquestionably, these advances will profoundly change our post-war foods and diet.

No More Home Cooking

In metropolitan areas it is highly possible there will be no kitchens in the home; food will be sent to the house via a pneumatic delivery tube, cooked and ready to serve. The modern housewife (this word, too, may become obsolete)

(Continued on page 130)

To the MANUFACTURER with VISION for TOMORROW

Technical information regarding all types of SLEEVE BEARINGS such as Alloys, Lubrication, Design.

Research to determine the CORRECT answer to unusual bearing applications.

Facilities for complete manufacture of EVERY type of SLEEVE BEARING and BUSHING.

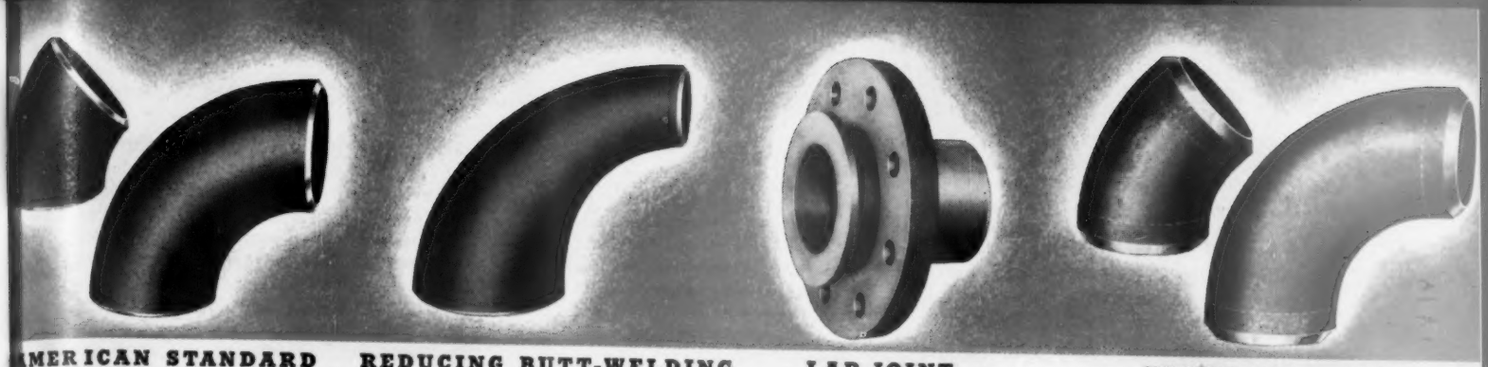
Service with capable field engineers located in TWENTY-TWO industrial centers.

Here is how
JOHNSON BRONZE
can help you TODAY

War has interrupted normal business but it hasn't stopped thinking . . . and planning for tomorrow. Leading manufacturers in every line of products are now seeking new ways to improve . . . to cut costs . . . to increase performance. All this is possible with the *right* type of bearings. Why not ask a Johnson engineer to review your bearing applications? Chances are ten to one that he can make a worthwhile suggestion . . . a recommendation backed by more than 30 years exclusive bearing experience. As we make *ALL* types of sleeve bearings, we hold no prejudices for any one kind. Your inquiry carries no obligation.

JOHNSON BRONZE
SLEEVE BEARING HEADQUARTERS
The MOST COMPLETE SLEEVE BEARING SERVICE in the WORLD
450 S. MILL STREET NEW CASTLE, PA.

When writing Johnson Bronze Co. please mention Purchasing



AMERICAN STANDARD BUTT-WELDING ELBOWS

REDUCING BUTT-WELDING ELBOWS

LAP-JOINT STUB ENDS

"LONG TANGENT" BUTT-WELDING ELBOWS

BUTT-WELDING REDUCERS

BUTT-WELDING CAPS

MIDWEST

WELDING FITTINGS

SAVE TIME
IMPROVE PIPING DESIGN
REDUCE COSTS

Many qualified welders who have worked on all kinds of piping jobs will tell you that Midwest Welding Fittings have exceptional dimensional accuracy and uniformity . . . saving time in layout because all pipe can be cut in advance according to drawings . . . saving time in lining up and welding . . . assuring more uniform welds.

Midwest originated and developed many of the fittings shown here: the "long tangent" elbows, saddles, sleeves, shaped nipples, and lap-joint stub ends with large radius and heavy forged lap. Midwest Saddles compensate for the weakening of header body resulting from the metal removed for neck opening: Midwest Sleeves relieve butt welds of any bending stress and much of tensile stress; Midwest Shaped Nipples eliminate all layout and templates when saddling one pipe upon another; etc. Get Bulletin WF-41 for complete information.

MIDWEST PIPING & SUPPLY CO., Inc.

Main Office: 1450 South Second St., St. Louis, Mo.

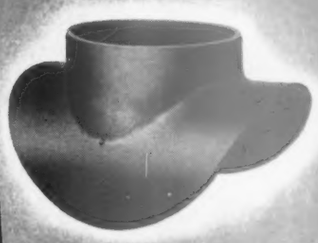
Plants: St. Louis, Passaic (N.J.) and Los Angeles

Sales Offices: Chicago—645 Marquette Bldg. • Houston—229 Shell Bldg. • Los Angeles—520 Anderson St. • New York—(Eastern Division) 30 Church St. • San Francisco—535 Call Bldg. Tulsa—533 Mayo Bldg.

BUTT-WELDING TEES

BUTT-WELDING CROSSES

BUTT-WELDING TEES REDUCING ON RUN

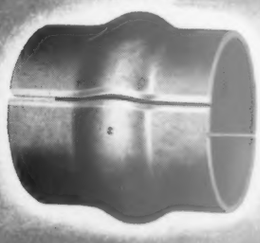


WELDING SADDLES

BUTT-WELDING RETURN BENDS

SHAPED NIPPLES

FORGED STEEL FLANGES



WELDING SLEEVES

(Continued from page 128)

will talk not to a grocer but to a local community kitchen by radio television and may inquire, in an irritated voice, why her order of hot lamb chops, peas and vitamin biscuits has not reached her. When her dinner does arrive the food will be perfectly prepared, precisely the right temperature and skillfully seasoned with the most appetizing condiments. All of this foretells a revolution in packaging which may be to the vacuum-seal type, by which food can be prepared, kept warm and delivered in perfect condition.

Comfort in the home of the future will be maintained in summer by proper air-conditioning, and in winter by radiant heat from the walls, which may also serve as the source of light. Old-fashioned house cleaning will become a thing of the past. Walls, furniture and drapes will be dusted, cleaned and sterilized with a high electrostatic field. The home will become a thing of beauty and superb comfort, and yet it will be inexpensive when judged by today's building costs.

★ ★ ★

FORECAST BUILDING DECLINE IN 1943

Construction contracts for the year 1943 should equal the volume of 1940, latest year when peacetime activity was dominant, or perhaps show an increase over that year, according to the F. W. Dodge Corporation. This estimate was reached after review of current curtailment orders of the WPB and also of government estimates for 1943. The estimate of $4,035,000,000 is made for the 1943 building and engineering contract volume (37 states east of the Rockies), as compared with an estimated $7,915,000,000 for 1942. Nonresidential building is estimated to decline 53% in dollar volume. Residential building is estimated to decline 44% in dollar volume. "In general, the number of very large projects is apt to be small in 1943 as compared with the numerous huge projects of 1941 and 1942", according to the review.

★ ★ ★

DIRECTOR APPOINTED FOR WAR PRODUCTION SCHEDULING

Charles E. Wilson, WPB Production Vice Chairman, has appointed Ralph J. Cordiner as WPB Director General for War Production Scheduling. Mr. Cordiner for the last three years has been President of Schick Incorporated, Stamford, Conn., and as such has had first-hand experience with the problems corporations face in fitting their work into the war effort. In his new position he will carry out the scheduling duties vested in the office of the Production Vice Chairman. He has had long experience in the electric appliance field. He became associated with the General Electric Company in 1932 when that company absorbed the Heating Device Section of the Edison General Electric Appliance Company, and in 1938 was made manager of the Appliance and Merchandising Department. He became president of Schick Incorporated in 1939.

Ralph J. Cordiner, Director General for War Production Scheduling

★ ★ ★

THE MARKET PLACE

Owing to the general application of price controls governing industrial commodities, and the relatively few market fluctuations among the key items heretofore reported each month in PURCHASING, the tabulation of such prices is being discontinued for the present. It is the belief of the editors that the informative and barometric value of the department known as "The Market Place" does not, for the time being, warrant the attention and space which it requires. The listing will be resumed at such time as conditions may make it desirable to do so.

NOTICE
TO WAR INDUSTRIES

★★★ If your shipping room's stencil cutting machine needs repair, your nearest Diagraph-Bradley distributor will lend you a machine while our factory puts your equipment in tip-top order.

Our experts overhaul *all* makes and models. If you need a new machine, we can make immediate shipment, in letter sizes from ½" to 1¾" to firms with high priority ratings.

Complete Shipping Room Supplies

Diagraph-Bradley non-settling, non-clogging, stencil Ink, Stencil Board, Fountain Brushes, Fountain Markers.

Distributors in principal cities. See phone book or write Diagraph-Bradley Stencil Machine Corp., 3750 Forest Park Blvd., St. Louis, Mo.

DIAGRAPH-BRADLEY STENCIL CUTTING MACHINES. *Features*: Exclusive punch guide assures perfect alignment; Removable interchangeable letters; Easy-to-read dial; Ball-bearing construction; Visible feed; Fewer working parts; Smooth-baked finish; Cuts stencils any length.

DIAGRAPH-BRADLEY
STENCIL MACHINES
Made By World's Oldest and Largest Manufacturer of Stencil Cutting Equipment

When writing Diagraph-Bradley Stencil Machine Corp. please mention Purchasing

WARN AGAINST UNAPPROVED FIRE FIGHTING EQUIPMENT

A great deal of unapproved fire-fighting equipment has come on the market since the outbreak of the war that has little fire protection value, according to Safety Research Institute, Inc., New York. The Institute declares that many of these devices are dangerous in that they impart a false sense of security, for they are inferior in one way or another to approved equipment. "Without exception", it is emphasized, "the merits of any fire fighting device can be judged by whether or not it has been approved by Underwriters Laboratories, Inc., or Factory Mutual Laboratories. If so, it bears a label indicating such approval." There is still sufficient approved equipment available to take care of legitimate needs, reports the Institute, and the two approval bodies mentioned above have further eased the situation by granting temporary certificates of approval, valid for the duration, for certain kinds of equipment which are now being made with non-critical substitute materials, though such equipment cannot be expected to stand up for as long as devices made of more durable materials.

ROY C. MOORE HEADS AMERICAN LEATHER BELTING ASSOCIATION

The American Leather Belting Association, 53 Park Row, New York, elected the following officers at its recent annual meeting: President, Roy C. Moore, Charles A Schieren Co., New York; vice president, George L. Abbott, Graton Knight Co., Worcester, Mass.; treasurer, Arthur H. Rahmann, George Rahmann & Co., New York. New directors: C. Carter Bond, Charles Bond Co., Philadelphia; Roy C. Moore, Charles A. Schieren Co., and Frank F. Raniville, F. Raniville Co., Grand Rapids, carry-over members being George L. Abbott, Graton Knight Co., Worcester, Edward H. Ball, Chicago Belting Co., Chicago, P. J. Slowey, Holyoke Belting Co., Holyoke, Mass., Major A. E. Carpenter, E. F. Houghton & Co., Philadelphia, and Wm. T. Bell, Page Belting Co., Concord, New Hampshire. E. R. Rath is secretary of the association.

COBALT USE FURTHER RESTRICTED

Cobalt, one of the important steel alloys, has been placed under tighter control by General Preference Order M-39, as revised by the Director General for Operations. Under the new regulations, cobalt is subject to complete allocation, except for quantities of 25 pounds or less which may be delivered in any one month to any consumer without specific authorization. Previously, 50 pounds could be delivered monthly without specific authorization.

EFFICIENT PROCUREMENT PRACTICES

Not a single working day has been lost on account of material shortages or because of labor trouble, at the huge plant of the Willys-Overland Company in Toledo, according to statement by Joseph W. Frazer, president of the company which is now in its twelfth month of all-out war production. He said that the company has become one of the major factors in the nation's war production effort with a schedule running into hundreds of millions of dollars.

SURPLUS EQUIPMENT NEEDED IN WAR EFFORT

In addition to the huge tonnage of vital materials being brought to light by salvage campaigns, large inventories of surplus mechanical and electrical equipment over three months old, are reported to be lying dormant in the nation's industrial plants and warehouses, though much of it could be used to advantage in the war effort. The W. W. Grainger Company of Chicago claims that "vital surplus merchandise" valued at $1,500,000,000 is "being withheld from production", and that among the vitally needed items are a wide assortment of electrical equipment, machine tools, and accessories.

OSTER CELEBRATES 50TH ANNIVERSARY

The year 1943 marks the 50th year of business for the Oster Manufacturing Company, Cleveland, Ohio, manufacturers of pipe and bolt threading equipment and turret lathes. Roger Tewksbury is president and treasurer of the company, Arthur S. Gould, vice president, and Harry A. Maurer, secretary.

Prompt Deliveries ON CASTINGS —LARGE AND SMALL . . . .

A large drill press arm cast for a prominent machinery manufacturer.

A small pressure casting designed for a gas engine.

LEADING manufacturers in many different fields of industry have used Forest City Castings continuously for years—many as long as 25 years.

Forest City production handles castings from a ½ ounce to a half ton—gray iron, semi-steel and high-test semi-steel. Today we can produce and deliver with unusual promptness. Discuss your requirements with one of our casting specialists. He's as near as your telephone.

Gray Iron, Semi-Steel and High Test Semi-Steel Castings

PHONE PROSPECT 5040

THE FOREST CITY FOUNDRIES CO.

2500 WEST 27th ST. • CLEVELAND, OHIO

When writing The Forest City Foundries Co. please mention Purchasing

CLASS B PRODUCTS LIST RAISED TO 6000 UNDER CMP

Revision of the Class B group classification under the Controlled Materials Plan raises the number of items on this list to about 6,000, according to William E. Arnstein, New York, CMP Regional Specialist of WPB, who emphasizes that the whole structure of CMP is based on the distinction between Class A and Class B products. Each manufacturer, under the plan, must ascertain whether his product falls into Class B or not before he can start to apply the plan to his operations. The distinction is important, he said, because the procedure to obtain controlled materials under the plan is different for the various product classifications.

Only products specifically mentioned in the Class B list are treated as such. Every other product automatically is a Class A product.

Mr. Arnstein said that in all probability the date set for the first inventory reports under the plan will be extended to February 1, the reports to be based on inventories as of December 31, 1942. He further stated that there would be no inventory adjustments under CMP such as those that caused so much disturbance under the PRP plan. Under CMP manufacturers are not to apply for materials that they can provide out of their own inventory. However, if it becomes known that a company is hanging onto its inventories despite the fact that they appear too high, the fact will be reported to the Materials Redistribution Branch.

CMP will not call for a great deal of additional paper work, it was stated, as Washington has on hand data on which it is possible to base sound estimates for many items.

CELESTIAL NAVIGATION TRAINER
LINK AVIATION DEVICES, INC.
BINGHAMTON, NEW YORK
MFRS. TRAINER NO.
SERIAL NO.
GISHOLT
Bastian - Made
FIBRE-LITE
PROPERTY OF
DEFENSE PLANT CORPORATION
AN INSTRUMENTALITY OF THE
UNITED STATES GOVERNMENT
D.P.C.
NORD
REMINGTON RAND, INC.
FOR USE WITH
REMINGTON BOOKKEEPING MACHINES
U.S. ARMY AIR FORCE
DRIFT METER
AGFA ANSCO
HAMILTON STANDARD
HARTFORD
CONNECTICUT
UNITED AIRCRAFT CORPORATION
PROPELLERS
LINK RADIO RANGE KEYER
TYPE
VOLTS
CY.
PART NO.
SER. NO.
Nameplates-Dials
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Ideal substitute for metal plates. Tough, resilient, non-inflammable, high dielectric strength, not brittle, will char at flame temperature, insoluble in water, gasoline, oil and most solvents. These plates are now being used by country's leading manufacturers and U. S. Government.
Available printed, die-embossed, or stamped. Can be stamped or engraved with serial numbers.
We Also Manufacture For Many War Industries —
LAMINATED PLASTIC PLATES OF SUCH MATERIALS AS ACETATE, CELLULOID AND VINYLITE
These hermetically sealed, waterproof plates may also be stamped or engraved with serial numbers the same as metal.
Solve your problem of plates or dials by getting detailed information from the Bastian man. Offices in principal cities, or write —
BASTIAN BROS. COMPANY
1945 Bastian St. Rochester, N. Y.

TREATED MINE SUPPORTS SAVE STEEL

After a ten-year service test, pressure-treated timbers in a drift mine located in Central Pennsylvania coal fields have saved $12 per three piece set, according to estimates of the American Mining Congress District Committee of Central Pennsylvania. The estimate is based on a three-year life span for untreated timbers.

The test installation includes a drainageway built 8,500 feet through virgin coal in which 1400 timber sets support the mine roof. Recently, inspectors found that the timbers, installed in 1931, showed no signs of decay, even though one leg of each support is set in a ditch carrying continually moving water through the drainageway. Preservatives used in treating the timbers were creosote, zinc chloride, zinc-meta-arsenite, and Wolman Salts.

In light of today's metal shortage, it was estimated that at least 200 tons of steel were saved by using the timber supports instead of metal in a 1400 foot segment of the drainageway alone.

DIESEL-ELECTRIC LOCOMOTIVES YET AVAILABLE

Though the war has compelled the standardization of diesel-electric locomotives, war requirements have forced the intensive development of power plants with greater power in less space with less weight and designed for mass production, according to B. S. Cain of the General Electric's Locomotive Engineering Department. He reports that the use of small diesel-electrics in industrial service has increased tremendously. Standard sizes in this class range from 25-ton, 150-hp to 80-ton, 500 hp. For light railroad service and switching the 44-ton, 380 hp unit has proved most useful. Its 95 per cent availability often permits it to be put in three-shifts a day operation. Production of diesel-electric locomotives of more than 100 tons for domestic use has been limited principally to a 1000 hp supercharged unit, although 660-hp units are available now.

SOUND SLIDE-FILM FOR PROMOTING SALVAGE PROGRAM

"Let's Get in the Scrap" is the title of a sound slide-film produced by the National Association of Manufacturers as an educational feature to aid in the industrial scrap salvage program. The film runs for about twenty minutes, and graphically portrays an up-to-the minute war-time salvage procedure. Copies of the film and the recording may be procured from Hamilton W. Wright, Chief, Industrial Salvage Section, Conservation Division, War Production Board, Washington. The price is $5.00.

When writing Bastian Bros. Company please mention Purchasing

Defense against slipping

BLAW-KNOX GRATING

A Blaw-Knox Electroforged Steel Grating Floor with the safety twisted cross bar that grips shoe soles and avoids accidents.

To protect your men and keep them on the job for National Defense, use BLAW-KNOX OPEN FLOORING in all places in your shops where there is a chance of falls due to underfoot conditions.

Send for paper-weight size sample showing safety cross-bar construction.

BLAW-KNOX DIVISION of Blaw-Knox Co.

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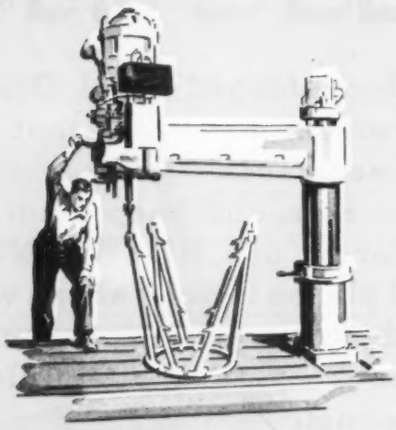
NEW YORK CHICAGO PHILADELPHIA BIRMINGHAM

When machine tools can't be had

Black & Decker Tools

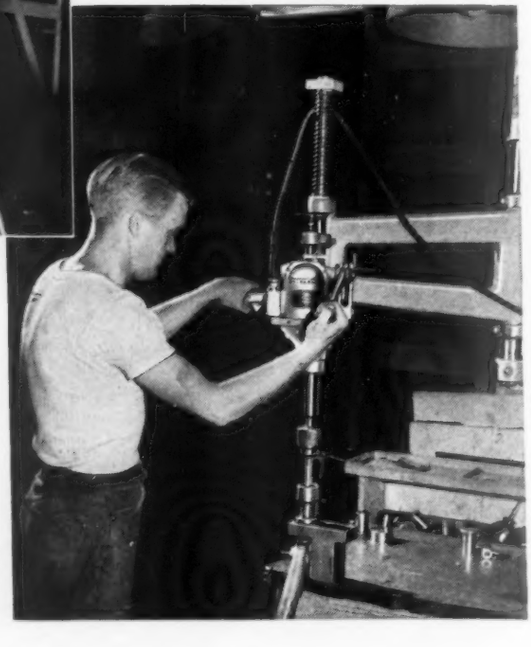


THEY COULDN'T GET THESE . . . SO HERE'S WHAT THEY DID!

AIRCRAFT MECHANICS, INC., **needed equipment to start quantity production of welded steel structures for airplane engine mounts and landing gear . . . they couldn't get machine tools for months. But that didn't stop 'em! By combining ingenuity with Black & Decker Portable Electric Tools, they built their own special equipment—saved 3 to 4 months starting production. The pictures here tell the story.**

The case of Aircraft Mechanics, Inc., is not unusual. We have just published a booklet showing how other ingenious war producers have combined brains with Black & Decker Tools—and built special equipment to do special jobs when

(Left)
WAR WON'T WAIT so, around a Black & Decker 7/8" Utility Drill, Aircraft Mechanics, Inc., built this special device for dressing the side edges of bearings. The device pulls up instead of bearing down. A special reamer is inserted on the end of a special chuck underneath.



(Right)
IN A RADIAL ARM of their own design, Aircraft Mechanics, Inc., uses another Black & Decker Drill to do the work of a 48" radial drill press, for drilling operations on aircraft engine mounts. Ingenious adaptations like this helped save 3 to 4 months starting production.

(Above)
IN "HOME MADE" JIG, on which a hand-turned thumbscrew exerts a pulling up action, a Black & Decker Utility Drill is used for dressing—or "spot facing"—the under sides of bearings. These Black & Decker Tools are standing up under rough usage, running continuously 24 hours a day.

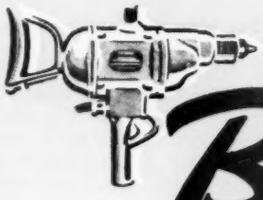
do the Job!

machine tools were not available. It's called "They Used Their Heads"—and a copy is yours for the asking. Write to: The Black & Decker Mfg. Co., 764 Pennsylvania Ave., Towson, Md.

. . . and that's not all!

In addition to coming through on these "special" jobs, Black & Decker Tools also are speeding war production on countless "regular" jobs—such as drilling and tapping, screw driving and nut running, sanding and grinding, sawing and sheet metal cutting. They probably can step up your war production schedule, too.

Expert Help for You: If you have a tooling problem, phone your nearby B & D Distributor. He's ready to serve you quickly—with expert tool information—or as a dependable source of supply.



LEADING DISTRIBUTORS EVERYWHERE SELL

Black & Decker

PORTABLE ELECTRIC **TOOLS**

"IT'S TOUGH ON THE DRILLS--BUT THEY CAN TAKE IT!" . . .

says Aircraft Mechanics, Inc. Here they have used a Black & Decker Utility Drill in building their own horizontal drill press. According to their report, this outfit is very fast and is doing the same work as a big 60" radial drill press. A new free booklet—called "They Used Their Heads"—illustrates more such ingenious adaptations of Black & Decker Tools. A copy is yours for the asking. Just write: The Black & Decker Mfg. Co., 764 Pennsylvania Ave., Towson, Maryland.

PERSONALITIES in the NEWS

W. P. Hopkins, has been appointed Purchasing Agent for the Tuthill Pump Company, Chicago. For the past fourteen years Mr. Hopkins was associated with the purchasing department of the Illinois Central Railroad.

M. C. Goodfellow is Purchasing Agent for the recently organized H. L. Harvill Co., Los Angeles, which will specialize in centrifugal, pressure and die castings as well as permanent molds.

George J. Cronin, State Purchasing Agent, Boston, has been made State Government Mileage Administrator, by Governor Saltonstall. Looking to the conservation of gasoline and rubber, it will be his job to see that the use of state motor vehicles is cut forty percent below 1941. S. G. M. Admr. Cronin reports that this goal is being reached, and that of the state's fleet of 1773 vehicles, 325 have been off the road since the first of the year and the mileage of cars now in service is being reduced.

J. E. Victor, State Purchasing Agent, Little Rock, Ark., has been named chairman of the tin salvage campaign in the Little Rock area, succeeding, Glenn A. Hatton, resigned, according to announcement by W. E. Gisdin, state salvage chairman.

Francis X. Land, budget commissioner, Boston, has been appointed City Purchasing Agent, vice John A. Breen of Dorchester who some time ago received an appointment as Secretary of Federal Regulations.

Otis Massey, Purchasing Agent of the R. V. Aycock Company, Houston, Texas, was elected Mayor of Houston in the recent elections, his candidacy being sponsored by the Citizens Charter Committee and supported by all three newspapers of the city. Mr. Massey has been an active member of the Houston Association of Purchasing Agents for more than twenty years, served as president of that Association in 1931 and is widely known in purchasing circles through his attendance at N.A.P.A. conventions.

H. E. Ashley has been appointed Purchasing Agent of the Bull-Stewart Equipment Company, Dallas.

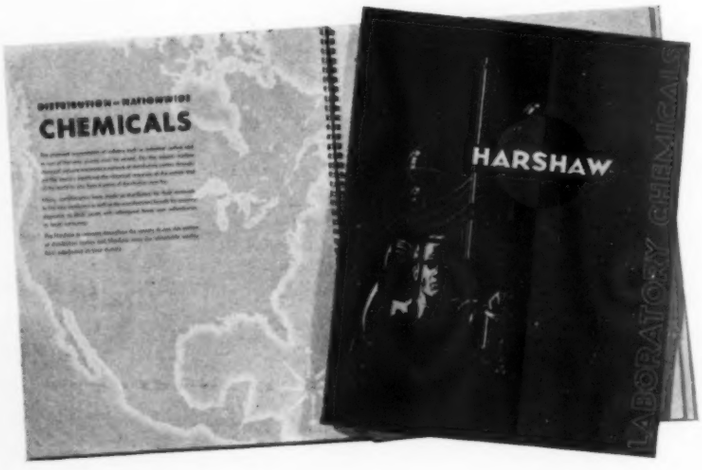
Stuart F. Heinritz, Editor of PURCHASING, was a speaker on the "Wake Up, America!" program broadcast over the Blue Network from Station WJZ, New York, December 20th. The discussion topic was: "Is Washington Over-Regulating War Industry?" The other speakers were Dr. Alfred P. Haake, Chicago economist, and Aaron Levenstein of the Research Institute of America.

Edward G. Hereth has been named City Purchasing Agent at Indianapolis. Mr. Hereth is a graduate of Wabash College and has had thirty-five years of business experience, serving as vice president and general manager of the Baldwin Piano Company of Indiana. He is a past president and director of the Merchants Association of Indianapolis.

Ernest A. Kirby has been appointed Supervising Purchasing Agent for all plants of Merchants & Manufacturers, Inc., located within a 200-mile radius of New York City. Mr. Kirby was formerly production manager for the Arkwright Corp.

W. C. Skuce, Supervisor of Materials Procurement, Priorities, and Inventory Control for the General Electric Co., Schenectady, N. Y., has been appointed Assistant Director of the Controlled Materials Plan Division of the War Production Board.

James P. Conway, Purchasing Agent, Delta Finishing Company, Philadelphia, Pa., was elected chairman of the Philadel-



This new Price List of Laboratory Chemicals is more than a catalog. It breathes the spirit of service and gives flashes of some Harshaw accomplishments toward meriting the statement—

—a gram or a thousand pounds—ultra pure or raw materials—if it's chemical or even bearing on things chemical—Harshaw has it— and as near as your telephone—

Write or phone for your copy of this book.

THE HARSHAW CHEMICAL COMPANY

CLEVELAND, OHIO, AND PRINCIPAL CITIES

When writing The Harshaw Chemical Company please mention Purchasing

phia section of the American Association of Textile Chemists and Colorists, at the Atlanta meeting of that body.

Bertram S. Stephenson, formerly Director of Purchases for the American Radiator & Standard Sanitary Corp., and now president of the Tonawanda Iron Corp., has been appointed a member of the Industry Advisory Committee on Pig Iron, Office of Price Administration.

Warren Dinan has been appointed Purchasing Agent of Stix, Baer & Fuller, St. Louis, succeeding George Pemberton, who has resigned to serve in the Army.

E. N. Dack, General Purchasing Agent of D. Ackland & Son, Ltd., Winnipeg, has been appointed regional priorities officer for the Canadian Munitions and Supply Department, with headquarters in Winnipeg.

Tucker McCravy of Spartansburg, S. C., has joined the Pacific Mills of that city as Purchasing Agent. He will maintain offices at the Pacific Mills' Lyman plant and will supervise purchases for the Lyman plant and also the company's plants at Columbia

W. P. Hopkins has been appointed Purchasing Agent of the Tuthill Pump Company, Chicago, manufacturers of rotary pumps and precision equipment. Mr. Hopkins was formerly Assistant Purchasing Agent for the ordnance plant at Marion, Ohio, and prior to that, for the Illinois Central Railroad.

Morris Miller has been promoted from the position of Assistant Purchasing Agent, to Purchasing Agent, by the Essential Industries Corporation, New York, N. Y., manufacturers and designers of jigs, tools and dies.

Esther D. Sigal, Purchasing Agent for Ex-Lax, Inc., Brooklyn, N. Y., has resigned, the resignation taking effect as of December 31st. She has been associated with the Ex-Lax Company for the past fifteen years in various capacities.

Bernard L. Gill, City Purchasing Agent, Madison, Wis. has been appointed mileage administrator for that city, and thus has the responsibility of seeing to it that the operation of all municipal motor vehicles are so reduced as to meet government demands for a forty percent reduction in driving in its rubber conservation program.

G. A. Bensinger has been appointed Assistant Purchasing Agent of the Henrite Products Corporation, Ironton, Ohio. Previous to this appointment he was manager of the company's New York City district office. In his new position he will office in Ironton.

Charles B. Smurthwaite of Salt Lake City, Utah, has been appointed County Purchasing Agent, succeeding J. E. Wiscomb, resigned. Mr. Smurthwaite is also executive secretary of the Salt Lake County Civilian Defense Council.

Alvin A. Borgading, formerly Assistant Purchasing Agent, American Car & Foundry Company, has been appointed Purchasing Agent, according to announcement by William J. Harris, vice-president in charge of purchases. Herbert Streader was named Assistant Purchasing Agent and placed in charge of the material control division set up under the WPB plan.

Semy Ernest, Purchasing Agent, Commodore Hotel, New York, N. Y., through the acquisition of new responsibilities as assistant to the president, will now be responsible for the direction and supervision of the banquet and promotion department as well as having charge of all caterings.

William H. McVey, Purchasing Agent, Essex House, New York, N. Y., is the new president of the New York branch of the International Stewards' and Caterers' Association.

Wesley A. Clem, Purchasing Agent of the Reading Railroad, has been elected to the Abington Township (Penna.) School Board.

A. S. Fish of the purchasing department at the Harrison, N. J., plant of RCA Manufacturing Company, was cited

. . . Draw on Western's 42 Years' Experience in Fabricating Felt to Closest Specifications

GROMMETS
Channels
Washers
Gaskets
Pads
Anti-Squeak Strips
Lubrication Wicks
Insulation
Weatherstrips

● For more than four decades, Western Felt has specialized in the manufacture of felt. As a result of that experience, processes have been developed which permit the production of felt to surprisingly close tolerances. Methods of manufacturing *FELT* grommets have been perfected and this important development is now offered to relieve the critical rubber situation. The company's engineers are fully qualified to work with *your* design and product engineers on any problem involving the use of felt grommets. Use their services—and the modern manufacturing facilities of the largest independent manufacturer—

WESTERN FELTS
ACADIA
SYNTHETIC PRODUCTS

"WESTERN"

WESTERN FELT WORKS

Manufacturers and Cutters of Wool, Jute, and Hair Felts • Processors of Synthetic Rubber and Plastics • Sheets • Extrusions • Molded Parts

Chicago, Ill.: 4035-4117 Ogden Avenue
Detroit, Mich.: 420 Stephenson Building
BRANCH OFFICES IN ALL PRINCIPAL CITIES

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ARMSTRONG

Drop Forged

setting-up TOOLS

This is no time to have men pawing over the scrap pile for makeshift setting-up materials. At any time its bad shop practice when permanent efficient time saving ARMSTRONG SETTING-UP TOOLS can be picked up from the nearest Mill Supply house. ARMSTRONG Planer, Jacks, Bracing Jacks, Strap Clamps and T-Slot Bolts cut setting-up time to a fraction on Planers, Shapers, Boring Mills, Milling Machines and other machine tools. They assure rigid set-ups, more accurate work and prevent accidents and spoilage. They usually pay for themselves in a single job and give years and years of service. A complete line. Write for Catalog C-39.

Buy ARMSTRONG TOOLS from your Supply House

ARMSTRONG BROS. TOOL CO.

"The Tool Holder People"

303 N. Francisco Ave., Chicago, U. S. A.

Eastern Sales Office: 199 Lafayette St., New York

CHAIRS

FOR EVERY PURPOSE

Write for Prices and Descriptions

ADIRONDACK CHAIR CO.

1140 BROADWAY

NEW YORK, N. Y.

last month by the Board for Individual Awards, War Production Board, for national recognition of his suggestions to help war production. Mr. Fish suggested a change in the design of a radiator and the transfer of its manufacture to an outside plant. His idea reduced the cost of the item and saved a substantial amount of labor.

F. G. Murray, formerly Purchasing Agent for the L. A. & T. Railroad, and more recently chief clerk to the Purchasing Agent of the Louisiana & Arkansas Railway, has been appointed General Storekeeper of the L. & A., with headquarters at Minden, La.

BUDGETS PURCHASING DEPARTMENT

Mayor Walter W. Abbott of Rome, N. Y., has submitted to his Board of Estimate and Contract a new budget, which among other new things, calls for the creation of a City Purchasing Agent's office with annual appropriation of $4,885 for agent, clerk and miscellaneous.

PURCHASING MEN AVAILABLE

Men who are experienced and qualified in purchasing work are hard to find in these days. PURCHASING Magazine has on file the records of a few men who are now available, and will be pleased to serve as the medium of bringing together the man and the job where such experience and training can most effectively be put to work.

If you have an opening where such men can be used, please let us know about it. If you are seeking a position in purchasing work, please send us a resume of your qualifications. All information should be as specific as possible regarding the type of work, location, salary range, and personal requirements, to enable us to act intelligently in this service.

MADE MEMBER OF POST-WAR COMMITTEE

George Harrington, Purchasing Agent and Production Manager, Schick, Inc., New York, has been made a member of the Schick Company's Post-War Plan Committee, according to announcement by president Ralph J. Cordiner, who states that the committee has been organized "to meet the double test which will underlie the survival of private enterprise in post-war reconstruction. That test is, on the one hand, the ability to sustain employment at the American wage level and, on the other hand, the production of things and services of a usefulness and quality and at a price which will improve the general standard of living".

The committee is composed of President Cordiner, with Roy W. Johnson as secretary, Purchasing Agent George Harrington, Vice President A. L. Fisher, in charge of engineering and production, Vice President K. C. Gifford who is in charge of sales, patent attorney and research director Reginald Hicks, chief engineer W. A. Thomas, and general superintendent C. V. Stewart.

BOMBS for VICTORY

Finished with

EGYPTIAN Lacquer Enamel

for Ammunition

(Cellulose Type)

★Meets U. S. Gov't Spec. PXS-979

For use as an exterior coating for bombs, shells, grenades and other ammunition components. An important new development which—

Complies with Amendment 2, dated June 23, 1942.

Dries rapidly at room temperature, since it is a lacquer type.

Covers clean metal *completely* in one spray coat.

Can be dipped as well as sprayed.

Comes in sheen range from eggshell to flat.

Comes in wide variety of colors conforming to Color Card Supplement to Specification No. 3-1, General Specifications for Paints and Related Materials. Also Supplied in Black.

Provides in Blue Gray No. 12 a covering which meets Salt Spray requirements of Specification PXS-655.

Meets PXS-979 Specification requirements as to ability to withstand heat, cold water, flexibility test, blush resistance. Is non-lifting.

Send for Government "Spec." Book P

These are a few of the more important Government "Spec." finishes which we can furnish. For more complete list send for "Spec." book.

ES-680
SYNTHETIC TYPE
PROTECTIVE COATING

JQD-144
LUSTRELESS
BLACK BAKING
ENAMEL

AXS-736
CLEAR FINISH
FOR STEEL CARTRIDGE CASES

AXS-680
LUSTRELESS LACQUER ENAMEL
FOR AMMUNITION

AXS-684
TYPE I and II
LUSTRELESS PAINT FOR AMMUNITION

3-162-A
NITROCELLULOSE LACQUER ENAMEL
FOR AMMUNITION

P-27-b-2
ZINC CHROMATE PRIMER

84
ZINC CHROMATE PRIMER

AN-TT-P-656
ZINC CHROMATE PRIMER

★ PXS-979
LACQUER ENAMEL FOR AMMUNITION
(CELLULOSE TYPE)

THE EGYPTIAN LACQUER MANUFACTURING CO.
ROCKEFELLER CENTER—NEW YORK, N. Y.

EGYPTIAN
Superior FINISHES

When writing The Egyptian Lacquer Manufacturing Co. please mention Purchasing

Factory Forms, too, must "Take It"

PRODUCTION lines need production forms. And production forms need ADIRONDACK BOND. With its six colors and white, it's just what the doctor ordered—a versatile, economical, water-marked, 100% sulphite bond paper. ADIRONDACK BOND can "take it"—printed, typed, or written. It's available from your nearest merchant in stock sizes and weights.

ADIRONDACK BOND

A Product of

INTERNATIONAL PAPER COMPANY

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PAPERS FOR PRINTING AND CONVERTING

Companion Papers

INTERNATIONAL MIMEO SCRIPT
Ideal for mimeo work

INTERNATIONAL DUPLICATOR
More copies, clear reproduction, in gelatin or spirit process.

BEESWING MANIFOLD
Strong, light-weight, water-marked manifold paper.

ADIRONDACK LEDGER
Economical, strong, water-marked ledger sheet; for accounting and records.

SPRINGHILL
Tag—Index—Bristol

THOUGHTFUL PLANNING IS A SERVICE TO THE NATION

When writing International Paper Company please mention Purchasing

MAKE EVERY LETTER COUNT!

The essence of good business correspondence is summarized in five basic principles that provide a yardstick for your daily dictation

By H. L. BALDWIN

DO YOU realize that every letter you write is a valuable expenditure in time, money, labor, ideas and paper? And now, when you Purchasing Agents are such important, busy cogs in war industry's machine, it is even more necessary that you get the most out of your letter-dictating hours in the least time.

Less than 5% of the country's executives write as clear, concise and complete letters as they should. Yes, you may be the best doggone P. A. in the business, and still write only mediocre letters. For there is a trick in it—and practice makes perfect only if you stop to look at your own letter-writing technique with an objective eye—and reform.

But the strangest fact of all is that ninety-nine out of a hundred business executives are convinced that they write the finest business letters of anyone they know. It's a secret belief of any business men that his letters are second only to Shakespeare's in brilliant, fluent, colorful language. Why? No one knows why such things please the ego!

To make you take this subject even more seriously, here's an idea how much each letter you write costs. And then remember that you, of all people, are earnestly trying to cut down all kinds of cost in cooperation with the government's plea against wasteful expenditures.

Let's assume you dictate about ten letters an hour, which is probably about the average when you count in the long, involved ones that any day's work includes. If you make $5,000 a year (yes, of course you're worth more) that makes an hour of your time worth $2.08 because you earn $16.67 a day. Then your stenographer's time, even if you pay her such a low salary that you hate to whisper it to anyone—costs you another thirteen cents, including her time of transcribing.

Stationery, postage and folding cost you another five cents. That's a total of thirty-eight cents a letter. If you make $10,000 a year, each letter you write is costing your company about sixty cents. And that's a lot of money for throwing a few words together above your signature unless you really make them say something!

The "Five C's" are perhaps the shortest secret to success in business letter writing. Every letter you write should be concise, clear, correct, complete and courteous.

Keep It Concise

How to make it concise so as to save time for yourself, your stenographer, and the person to whom you send the letter? Before you even call in your stenographer, think through the answer to each letter and jot down on its margin the points you want to include in your reply. Thus when you dictate you'll have your facts handy, and won't need time out to scowl your best executive scowl and to chew on your cigar.

The cardinal rule of good letter writing is one that few people know. The first sentence of your letter should state the reason for your writing! Don't beat around the bush. If you are writing for some information, state your question in the first sentence and paragraph. You can start out by saying, "I am writing to get quotations on . . . " Why make an equally busy executive plod through half your letter before he can find out what it's all about? And if you do this, you will probably cut down the length of your letter automatically.

Another way to make yourself be concise is not to repeat ideas and refer back as most letter writers do. State your ideas *clearly once*, and then you won't have to keep referring to them and adding side thoughts along the way. Examine any of your recent letters and you may find you frequently suffer with "repeatitis".

Make It Clear

For clearness, try writing shorter sentences and paragraphs. Long, involved sentences slow you and the reader down. If it's clear in your mind, you can dictate it clearly in crisp, interesting sentences.

Try writing as you talk rather than in the stilted form that most men settle down to when they write letters. You talk clearly; why not write it the way you would say it?

For greater speed in writing and reading, cut down on the connectives you use, too. Most letters are dotted with these: "at any rate, although, specifically, for example, however, nevertheless," etc. Some connectives are necessary, but others are just a lazy man's way of patching up a muddled sentence when he realizes it's not clear.

When you hit a new idea, try a new

(Continued on page 142)

EAGLE-A PAPERS

Are YOU "Hiring" the RIGHT PAPER?

WANTED
MAN 5 FT. 9 IN. TALL
40-inch chest, weight 150 lbs. smooth shaven.

Absurd, quite absurd! . . . Yet how often do business men think of paper along just such lines . . . size, weight, color, and finish! Paper should be bought the way you'd hire a man — the right one for the job . . . an "executive" paper for important purposes, a "white collar" sheet for office jobs, a sturdy inexpensive stock for routines — the paper best suited to the task.

☆

EAGLE-A COUPON BOND 100% RAG U.S.A.
EAGLE-A ACAWAM BOND 100% RAG U.S.A.
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EAGLE-A ACCEPTANCE BOND RAG CONTENT U.S.A.
EAGLE-A TROJAN BOND RAG CONTENT U.S.A.
EAGLE-A QUALITY BOND MADE IN U.S.A.

Facsimile watermarks of Eagle-A Bond Papers

For those jobs where bond papers are applicable, Eagle-A offers you a broad choice of grades. Each of these grades has been developed and perfected for specific uses. Each is a quality paper in its grade.

From top rank "COUPON BOND" to practical "QUALITY BOND" they all carry the famous Eagle-A trade-mark, the accepted symbol of quality for nearly half a century.

We invite you to send for sample books of these six famous Eagle-A Bond Papers — or consult your Printer, Lithographer, or Engraver, they will be glad to quote comparative prices . . . *you* can be the judge of quality.

AMERICAN WRITING PAPER CORPORATION
HOLYOKE, MASS.

FOR VICTORY BUY UNITED STATES WAR BONDS STAMPS

(Continued from page 141)

paragraph. Thus the reader can tell a little more quickly that he's struck a new idea.

Here's an example of a paragraph that lacks clarity because the executive was wordy. What a little previous planning could have done for this sentence! Here it is in its muddled state:

"There must be an estimate of the money necessary to run the scheme until it really gets going, or until it is on its own feet, so that any future needs can be accurately ascertained."

Here's the same thought expressed clearly and concisely: "To define future needs accurately, one must first estimate the cost of carrying out the scheme."

Is It Correct?

If all the grammatical errors in business letters sent out by your executive friends were laid end to end, the resulting gibberish would sound like a Tokyo broadcast. It's futile to try to mention even mention the most common here. Just forget your dignity and consult your high school son's English book! After all, the best of us forget—and probably when you were supposed to be learning the fine points of grammar back in grade school, you were more interested in closing a purchasing deal of two sodas for your best girl and yourself.

It's an even money bet that you use the dangling participle, which, if your eighth grade English teacher could hear, would cause her to become a whirling dervish in her grave. If you start a sentence with "hoping," "looking," "thanking," or some other "ing", you are using a dangling participle. Avoid it like a Nazi sniper! Change "Trusting you will give this your prompt attention" to "We shall appreciate it if you will act promptly upon this".

Take the word of the present English experts, the word "very" is overworked. It weakens rather than strengthens an adjective. "He's a great man" is stronger than "He's a very great man".

And to make your letter easy on the ears, try throwing out all the stock phrases that you so love to include in any letter. If you have a pet phrase you trot out frequently, suspect it for being a stock phrase, and eliminate it. Here are a few of those expressions that your favorite adolescent would label "corny":

"According to our records, advise, at an early date, at this time, beg to acknowledge, contents carefully noted, hoping to hear from you soon, in reply we wish to advise, the writer, would state, permit us to say, thanking you in advance, enclosed please find," etc.

Try New Adjectives

If you want your letter to be tops in interest, try some different adjectives, too. Besides the anemic "interesting", "nice", "bad", "fine", there are "superb", magnificent", "appalling", 'worthy", etc.

Even now, when promptness and speed are at such a premium, hundreds of letters go out every day that are not com-

(Continued on page 144)

OUT THEY ROLL! Fighting tanks for U. S. fighting forces all over the world are rolling off factory production lines.

How Much Paper Work in Building a Tank?

Here's how Mimeograph duplicators help speed up factory paper work, cut production time for tank manufacturers

It takes a lot of muscle, a lot of "know-how" and a lot of perspiration to get a tank rolling off a production line. What many people don't realize is: it takes a lot of paper work, too.

In factories all over the country, tank manufacturers have found a new way to speed up this paper work—and the production of tanks and tank parts—with the help of the Mimeograph duplicator and Mimeograph die-impressed stencil sheets.

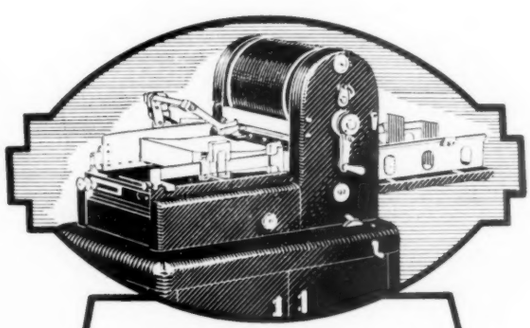
Engineering departments in many plants are using Mimeograph duplication to speed up and simplify the production and distribution of

parts lists
engineering change notices
engineering releases
operation line-ups
and other paper work functions.

Production and planning departments find extensive use for the Mimeograph equipment because of its flexibility and versatility. The all-important *spare parts list, packing list, and "Shipper"* can be quickly produced on the Mimeograph duplicator.

And the clean-cut, black-on-white copy produced by Mimeograph equipment makes for easier, surer reading . . . less possibility of error . . . assurance that the job will be done efficiently.

The Mimeograph distributor in your community has full information on how to speed up production for your company through duplication. Call him—or write direct to A. B. DICK COMPANY, Chicago.



Mimeograph duplicator

MIMEOGRAPH is the trade-mark of A. B. Dick Company, Chicago, registered in the U. S. Patent Office.

(Continued from page 142)

plete in facts. As a result, second letters have to be written and wires must be feverishly dispatched.

Check over the letter you are answering to make sure you have answered all the stated and implied questions in it and have given all the necessary facts. Yes, you can be concise and still give all the necessary details. There's a difference between being complete and being wordy.

Courtesy Is Important

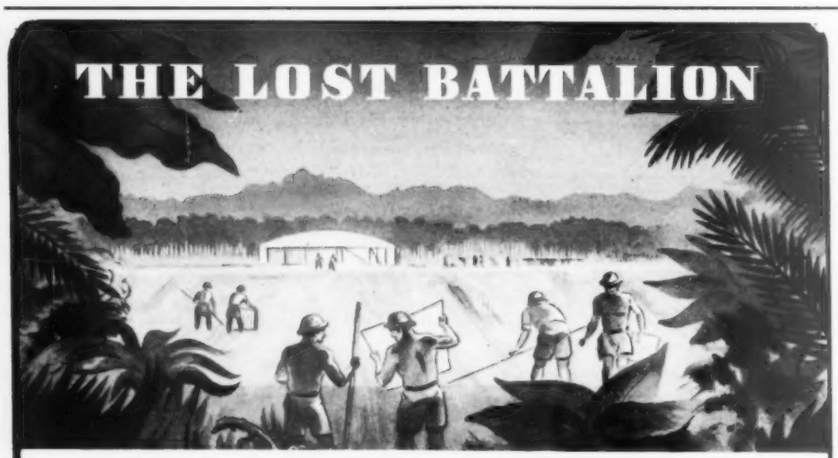
A really courteous letter has a positive tone. Remember how gently, firmly and positively your department store reminds you that you owe them money! In no case let a negative tone creep into your writing. An example of a negative way of asking for something is this: "Although I know you are extremely busy at this time and I hate to bother you, I am wondering if you could answer some questions for me?"

Here's the positive way of asking it, that doesn't put "no" into a man's head before he finishes the sentence. "May I have a few minutes of your busy time to ask a question or two that will help me immensely?"

Most American business men realize the importance of courtesy in letter writing, and make few errors on that score. (Pardon me— "on that score" is one of those trite, stock phrases, too!) But experts hold that writing a letter that is not clear, concise, correct and complete is in itself a discourtesy, for it takes up more of a busy man's time than if it were written effectively.

Purchasing Agents more than any other group of men know what good salesmanship is. Didn't you deal with both good and bad salesmen in the good old days when it was a buyer's market? Then you should know the importance of making your letters—your personal salesman——do the best job that can possibly be done.

Yes, just as in all your purchasing efforts nowadays, your letters should be tops in speed and efficiency. Dissect one of your letters with "The Five C's" as your measuring stick. Then determine to write better letters in less time. Now, as never before, every letter counts!



Somewhere in the steaming jungles of no man's land, engineers are building airports, according to well developed plans, equipped with the finest instruments and years of training. However, they would be handicapped if their plans were not made on strong durable paper. They would be another lost battalion.

Likewise your office clerks, equipped with the most modern typewriters, accounting machines, filing devices are a lost battalion unless you give them the most efficient *Parsons Papers* to use in their daily work.

These papers are fabricated with fine cotton fibers to give them durability, strength and permanence. Ask your Printer or Lithographer to show you the range of —

Parsons Paper

Specialized for Modern Business

BOND PAPERS	*For correspondence, documents and forms of every description*
LEDGER PAPERS	*For accounting systems, records, certificates and other permanent needs*
INDEX BRISTOLS	*For machine accounting, index record cards and general uses*
TECHNICAL PAPERS	*Made to your specifications for all types of special requirements*

PARSONS PAPER COMPANY • HOLYOKE, MASS.

QUERY-FORM HELPS SOLVE TYPEWRITER SHORTAGE

Having responded to the government's call for typewriters, the Globe Indemnity Company of New York has gone back to the use of the lead pencil in routine correspondence by adopting what it calls a "Query Form" which is pictured above.

Query forms are put up in pads and are furnished to all departments and to agents

Steno-Saver—Globe's Query Form. Query on left; answer on right.

of the company. Correspondents write the name of the addressee, the subject and the message, on the left half, making two carbon copies. One of them is kept and the other sent along with the original.

The space on the right half is for the reply. The correspondent inserts a carbon sheet, jots down his reply, and mails it back, keeping the carbon copy on which both message and reply appear. Both parties then have a record of the correspondence on a single sheet. Formal salutation and close are done away with, and longhand messages are apt to be brief and free from the stilted phrases common to routine dictation. Letters go in the mail at once and replies come back more promptly. The handicaps resulting from the shortages of typewriters and stenographers are said to be greatly mitigated.

PLAN NEW RUBBER PROBE

New investigation of the entire synthetic rubber program and proposed legislation to speed its progress are said to be planned by Senate proponents of a rubber from grains industry. In this connection, Albert W. Spanier, president of General Catalytics, Inc., Detroit, told the Senate Agriculture Sub-committee investigating synthetic rubber that rubber can be produced from turpentine at a cost of eight cents a pound.

SAVE to WIN

Buy War Bonds!

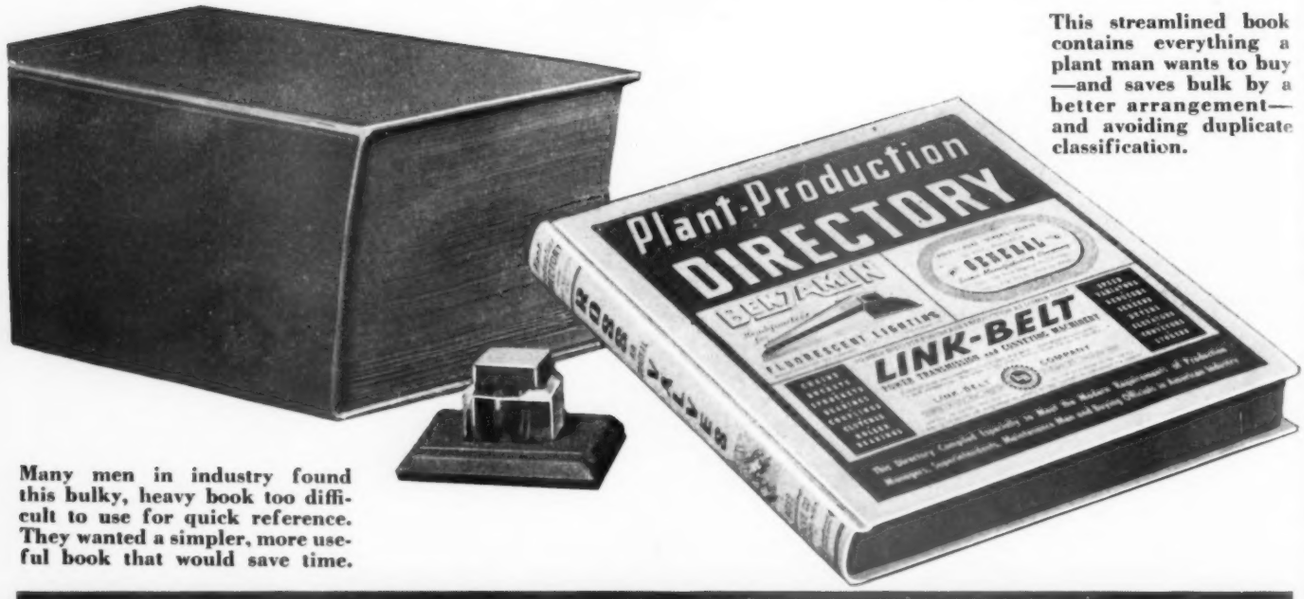
In the Army, it doesn't take long for even a raw recruit to learn the meaning of individual bugle calls . . . and to act accordingly. ● And in office or factory, even the newest employee rarely misses "production signals" that are flashed to him on the six easy-to-see, hard-to-overlook, wartime colors of

HOWARD BOND

Also available in White and Ivory . . . for letterheads

There is a copy in your office–

A New Buying Guide for Industry



This streamlined book contains everything a plant man wants to buy —and saves bulk by a better arrangement— and avoiding duplicate classification.

Many men in industry found this bulky, heavy book too difficult to use for quick reference. They wanted a simpler, more useful book that would save time.

Compiled to meet the Modern Requirements of Superintendents, Production and Buying Officials in Industry

"Boy, do I like this one. 5 lbs. as against 20 lbs. Easy to use—easy for even me to carry to anyone."

NEW FEATURES:

For the busy buyer who wants to know "where to buy it" and "who makes it" this is the modern, streamlined version of what an industrial directory should be. 15 lbs. lighter, fewer pages—yet complete and accurate. Contains Mechanical Data Section with useful tables and formula in most common use. Has a compact easy-to-use Chemical section.

If you are not already a constant user as hundreds are, try it out on supply sources. Use it for a week — and you will then be a confirmed user. You are sure to like it for you can locate what you want in half the time required by the unnecessary bulky books this new directory replaces.

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Plant-Production DIRECTORY

VACANCIES IN BUSINESS AND OFFICE SPACE ON INCREASE

Despite war activity and government leases in many centers, the amount of vacant business and office space is increasing in nearly all parts of the country, according to the National Association of Real Estate Boards, and the trend toward empty buildings is accelerating "even on Main Street", because of the way war is limiting many trades and industries. In New York, though store and office rentals have been slow, loft space is in demand. St. Louis recently reported 3,000 vacant stores along with comparatively large vacancies in smaller industrial properties. In Chicago, Detroit, Seattle, Denver, Memphis, Houston and other industrial and commercial centers, the trend is downward. In Indianapolis, business buildings are 15% vacant, and for Oshkosh, Wis. it is said that the number of vacancies in the business section has more than tripled in the past year.

PRIORITIES DECLARATION RECOMMENDED FOR AIR EXPRESS

Although priorities are not necessary in shipping by air express, they are advisable in air movement of vital war materials to avoid delays due to heavy air travel and traffic, according to President L. O. Head of the Railway Express Agency. Shippers of material for work on Government contracts are entitled to transportation priority and should avail themselves accordingly to assure prompt handling of materials.

Weight of shipments flown in air express service by all of the nation's commercial airlines during the first nine months of this year was almost double that carried in the comparable 1941 period. Air express continues to increase principally because of the war production program. The Railway Express' Air Express Division urges shippers to "Ship When Ready" instead of holding consignments until the close of the business day.

WAR CONTROL HANDBOOKS

Two new War Control handbooks are announced by the New York Journal of Commerce—one digesting all price and priority regulations now in effect and the other summarizing the controls on imports and exports. Every OPA price ceiling or rationing order, and every WPB L, M, and P regulation is covered in the 32-page "War Controls Guide". Industries and commodities are listed alphabetically along with a brief compilation of the various OPA and WPB regulations and amendments affecting each item. The "Import-Export Control Index" lists all existing controls in imports and exports, shipping priority rating, and licensing symbols assigned to various commodities. The import section includes a breakdown of WPB Order M-63, and an outline of the forms and information importers are required to furnish. Copies may be secured at 25¢ each from N. Y. Journal of Commerce, 63 Park Row, New York.

BUYING AUTHORITY INCREASED

The City Commission of Birmingham, Ala., has given the City Purchasing Agent greater leeway in making city purchases, by a change in the city code which authorizes him to buy materials for the city up to $500 without first getting approval for the purchase from the Commission. Heretofore the maximum was $150.

24 MILLION TONS OF SCRAP NEEDED NEXT YEAR

America must continue its current scrap drive for the duration of the war if the nation's mills are to keep turning out materials needed for victory, according to Lessing J. Rosenwald, head of the War Production Board's Conservation Division. He declared that there is no such thing as mills having too much scrap, and branded as "damaging" a recent statement that mills had all of the scrap iron they need and could afford to be particular as to the type sent to them. He stated that the 1942 scrap campaign probably would yield about thirty-one million tons, and mentioned twenty-four million tons as the scrap-raising goal for 1943.

Looking ahead we see America triumphant.

We see busy cities, prosperous farmlands and better living for all through scientific, industrial and economic progress.

We see the sharing of American freedom with peoples now oppressed by dictators.

But immediately ahead we see suffering, sacrifice and the mobilization of every resource to insure the victory that always has been and must remain America's birthright.

The New American Dream

There is no "letting up" for American industry this year as in former holiday seasons. Old Town's pause in production is a short one — our season's greeting to Old Town customers and friends a two-fold pledge:

. . . for the inspired devotion of Old Town facilities to giving speedy, effective service to the industries of today's America at war . . .

. . . for the continuance of Old Town's leadership in research in the interest of tomorrow's America at peace.

Old Town

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When writing Old Town Ribbon & Carbon Co. Inc. please mention Purchasing

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NEW USES FOR YOUR
ACE
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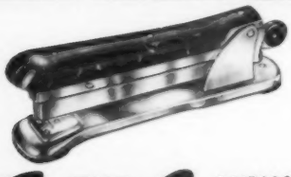

THE NEW Aceliner
STAPLING MACHINE

Most people think of Ace Staplers in connection with fastening papers and documents. But, in looking around your office and factory it is surprising how many new, time-saving duties they will perform efficiently. Put them to work in the drafting room fastening paper to drawing boards; for closing paper bags; for sending packages of samples through the mails; attaching merchandise to display cards; attaching notices to bulletin boards and for a host of other purposes.

Remember your Aceliner combines four operations in one machine . . it staples, pins, tacks and hand fastens. Each operation is designed to perform certain duties. Get the most out of your Aceliners and other Ace Machines, for the production of Ace Stapling Equipment has been materially curtailed. They are built to last a lifetime; you can't wear them out!

SOLD THROUGH DEALERS ONLY

ACE FASTENER CORPORATION
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ACE
STAPLING MACHINES
The WORLD'S FINEST
FOR EVERY PURSE AND PURPOSE

MADE DEPUTY PURCHASING AGENT

Cornelius J. Baker has been appointed Deputy Purchasing Agent in the Department of Purchase, Springfield, Mass., succeeding Charles M. Healey, recently promoted to the position of City Purchasing Agent. Mr. Baker's appointment is to fill out the latter's unexpired term—a period of about three years.

ENOUGH MATERIALS FOR 1943 ESSENTIAL NEEDS

The United States will have a sufficient supply of raw materials next year to meet all military and essential civilian needs, according to Lieut. Gen. Brehon B. Somervell, Chief of the Army Service of Supply, in a report to the Senate Small Business Committee.

The chief reason why raw materials will be available in greater quantities next year, General Somervell said, was because the country would not have so many heavy demands for war construction, all the needed plants having been built, and because the solution of the problem of substituting non-critical materials for critical ones was progressing with increasing effectiveness.

LIBBEY-OWENS DEVELOPS HOUSING DIVISION

Formation of a war housing division to "streamline" production of prefabricated homes for war workers, is announced by the Libbey-Owens-Ford Glass Company. The division is under the management of Richard C. Carr, former Toledo building and construction expert. The company has converted part of its Ottawa, Ill., plant for the manufacture of pre-fabricated houses, which is scheduled to produce several hundred four-family dwelling units for a government project. These are termed "row houses", and are built under the TDU-I series of plans issued by the Federal Public Housing authority. Many one, two and three bedroom houses have been furnished the government's ordnance plant near LaPorte, Indiana.

GEORGE B. HOWARTH

It is with deep sorrow that we report the death of George B. Howarth, former Vice President and Business Manager of PURCHASING, at his home in Westfield, Mass., December 9th. Mr. Howarth's early business career was in the position of Purchasing Agent of the Norton Grinding Machine Company, Worcester, Mass. He entered the business paper field with the Penton Publishing Company of Cleveland, Ohio, where he served as Business Manager of *Foundry* Magazine. Joining the staff of PURCHASING in 1933 as Eastern Manager, he subsequently became Vice President, and worked with this organization for six years. For the past two years he was Vice President and Sales Manager of the Mansir Printing Company, Holyoke, Mass. A wide circle of friends among purchasing men and industrialists mourn the sudden and untimely passing of a fine gentleman and able citizen.

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to reduce
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SEND FOR SAMPLES

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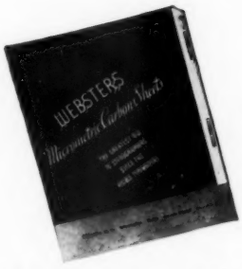
Turners Falls, Mass.

Your Carbon Paper and Typewriter Ribbon

BUYING GUIDE



Micrometric Carbon Paper is *different.* A vertical scale, actually a part of each sheet, helps stenographers space letters and reports more evenly. Micrometric saves both time and money. Try some.

Star Brand Typewriter Ribbons are built to wear. They give sharp, neat impressions. Webster service provides you with ribbons tailor-made to fit the various makes and kinds of typewriters used in your office.

Webster's MultiKopy Carbon Paper is laboratory-tested to insure longer wear and clear, permanent carbon copies. More than fifty years of experience is built into every sheet.

Webster also supplies: Carbon papers for gelatin hektograph, and spirit process duplicating machines; carbon-paper-ribbons for photo offset work; ribbons and carbons for all Elliott-Fisher, Addressing, Teletype, Adding, and International Business Machines.

FOR SERVICE AND SAMPLES WRITE:

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CARBON PAPERS and TYPEWRITER RIBBONS

Factory branches in New York, Philadelphia, Chicago, Pittsburgh, and San Francisco

BUSINESS MACHINES LUBRICANT USED ON ANTI-AIRCRAFT GUNS

A plastic petroleum lubricant developed by the Gulf Oil Corporation, for peacetime use on business machines, is being extensively used to lubricate the magazines of marine anti-aircraft guns, according to information released with the approval of the Navy Department. In addition to serving as a non-sticking lubricant that is effective in Icelandic waters or the hot China Sea, the product is said to prevent rust and corrosion and to afford adequate protection against salt water.

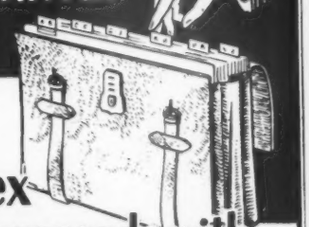
STICKERS PINCH-HIT FOR PAPER CLIPS

Mounting stickers, gummed on both sides, in two sizes, one-inch squares, and ½" x 1", are now available as a substitute for metal paper clips. The perforated sheets come in compact books from which individual stickers are readily removed. It is claimed that as many as 18 papers can be fastened together with the stickers before the bulk becomes unhandy. The adhesive is produced from tapioca, is instantly soluble and requires but little moistening.

RETRIEVING TYPEWRITERS FOR UNCLE SAM

Under the direction of W. F. Arnold, general sales manager, Underwood Elliott Fisher Company, the company's salesmen are now selling in reverse, that is, they are buying typewriters for Uncle Sam in response to the call for 600,000 typewriters needed to help win the war.

Put your finger on any information INSTANTLY



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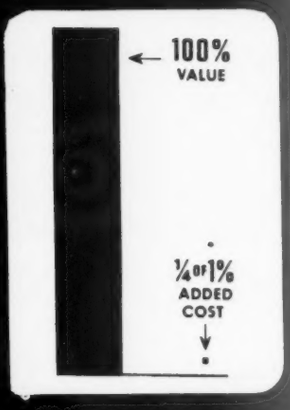
SO MUCH FOR SO LITTLE



The most durable L. L. Brown ledger, instead of ordinary paper, increases accounting costs only ¼ of 1%, yet guarantees 100% protection—utmost resistance to wear. Your printer will be glad to furnish you with L. L. Brown papers.

L. L. BROWN LEDGER Paper

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L. L. BROWN'S LINEN LEDGER
100% New White Linen & Cotton Fibres

ADVANCE LINEN LEDGER*
100% New White Cotton Fibres

FORWARD LINEN LEDGER
100% New Cotton Fibres

L. L. BROWN'S FINE
85% New Cotton Fibres

GREYLOCK LINEN LEDGER
75% New Cotton Fibres

ESCORT LEDGER & MACHINE POSTING
50% New Cotton Fibres

*Permanent Grades

1849

CLASSIC is a true masterpiece in typewriter ribbon manufacture — especially made to produce executive-type correspondence that is a pleasure to write and a joy to read. In reflecting your taste and discrimination in letter writing, CLASSIC Ribbons also reflect the traditional quality-and-value benefits which you receive from all Columbia-made typewriter ribbons.

The resilience and the toughness of the ribbon fabric and its superbly controlled inking assure writing and wearing durability that make CLASSIC Ribbons extremely economical to use. CLASSIC Ribbons are of outstanding benefit NOW because of voluminous wartime correspondence requirements — the need for speed and the elimination of frequent changes of worn-out, inferior ribbons. Ask your dealer, or the Columbia office nearest you, for a CLASSIC Ribbon — *and try it NOW!*

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200 Plymouth Building, Minneapolis, Minn.
107 Union Street, Nashville, Tenn.
1508 Fox Building, Philadelphia, Pa.
208 Standard Life Building, Pittsburgh, Pa.
205 East 6th Street, Cincinnati, Ohio
(Harris-Moers Company)

Also: London, England; Sidney, Australia

FIRST AID INDEX

First Aid Index in handy pocket size form, bearing the approval of the Commander-in-Chief of the U. S. Volunteer Life Saving Corps, is being issued by the Sylvania Electric Products, Inc., New York, N. Y., for use by local war emergency groups. It measures 6½" x 3" folded. They are available at 5¢ each. Minimum quantity for imprinting by Sylvania is 100.

RECOMMENDS ONE STATE PURCHASING DEPARTMENT

Declaring that the Purchasing Department of the Virginia State Highway Department "has not always been as diligent as it could have been in securing the lowest and best possible prices" on various commodities, L. McCarthy Downs, State Auditor of Public Accounts has recommended to Governor Darden that the highways department purchasing agency be consolidated with the state Division of Purchase and Printing. In his report Mr. Downs pointed out that the segregation of purchasing for the department was contrary to the objectives "sought under the centralized purchasing plan", and that the State Purchasing Agent is now buying for other departments the same types of materials being bought by the highways division.

G-E EMPLOYES AWARDED $115,000 FOR SUGGESTIONS

War-conscious General Electric workers this year have shattered all company records for worthwhile suggestions, according to William E. Owen of the Suggestion Committee. During the first ten months of 1942, employees were paid $115,000 for 12,250 ideas for saving materials or time in war production. A former carpenter received $1025 for two suggestions, one of which will save 537,000 pounds of steel and the other 110,000 pounds. Another employee received $750 for a suggestion showing greater utilization of steel in the manufacture of motors now used in war plants. Over a period of years the company has paid him a total of $1145 for 32 suggestions. Many other employees received awards ranging from $250 to $500, and downward.

Amberg

TRANSFILES

Metal Files are out.
Wood Files are expensive.
Here's your Solution —

AMBERG Fibre Board Files that slide in and out easily. Strongly constructed to last a long, long time. Olive green to match steel files.

★ Steel drawer fronts
★ Steel suspension slides
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No Priorities required. While quantity lasts, we can make

IMMEDIATE SHIPMENT

4-drawer, letter size	$10.80
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Knocked down f.o.b. Kankakee, Ill.

11 other sizes to suit your filing needs.

FREE BOOKLET for business men and women, "Instructions in Vertical Filing" — ideal basic data for your new filing clerk.

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STAR STAPLERS

The best way to fasten papers. Needed on every desk. Use economical standard size staples. Built to last. Guaranteed against defects.

Purchasing Agents, Here's our offer:

. . . Write us a letter telling us where to send it, and we will send you one of the latest Model Star machines to try out. There's no obligation and the transaction won't cost you a cent!

Many other models to choose from. Circulars and prices on request.

STAR PAPER FASTENER CO., NORWALK, CONN. Dept. P

The Fact-Power OF KARDEX FOR MATERIALS CONTROL

● THE CONTROLLED MATERIALS PLAN is NOT complicated. But it does require a fact-controlled Inventory system that definitely schedules the flow of balanced materials into a pre-defined production program.

That's why hundreds of famous firms have turned to Kardex for "Material Control" records. For Kardex provides a semi-automatic system of keeping materials in balance with planned production requirements. You merely read the Kardex signals and know at a glance the exact position of all your "controlled material" stocks. Along with faster posting . . . and reference . . . you are assured of maximum operating efficiency. Guesswork is eliminated because the signals tell you when and where corrective action is needed.

Why not follow the lead of 68% of all Army-Navy "E" Winners and inquire today about Kardex for your wartime record control needs? There's a Kardex solution to every problem . . . production, materials, procurement, personnel, any record requirement.

MATERIAL REQUIREMENT DATA

These orange signals indicate, by the month, when the last allotment and/or purchase was made.

These green signals tell the month through which material production has been scheduled.

MATERIAL CONTROL DATA

The amount of material in inventories is graphically translated into the weeks or months of stock available against previous monthly consumption figures . . . or as actually scheduled into production.

FACT-POWER . . . . exclusive with Kardex, means vital facts are *signalled* for instant selection, assuring prompt and accurate administrative action.

REMINGTON RAND

When writing Remington Rand please mention Purchasing

SHOP INSTRUCTIONS WORTH PASSING ON

Apropos of the difficulties encountered in procuring new tools and equipment, and production delays caused by making replacements, repairs and adjustments, Purchasing Agents may deem it worth while to procure copies of the following bulletins to pass on to the operating and maintenance shop departments of their plants.

Blow Torches

"Know your Blow Torch" is the name of an attractive two-color pictorial chart, describing torch labelling, lighting instructions and safety hints. The Turner Brass Works, Sycamore, Illinois.

Reclaiming High Speed Cutters

Bulletin describing simple way to reclaim high speed steel cutters has been released by Carboloy Company, Inc., Detroit, Mich. Prepared by J. S. Gillespie, engineer of that company, it tells how to re-tip, grind and braze cutting tools.

Overloading Electric Apparatus

Permissable overloading of electric apparatus as a means for conserving electric equipment, and the steps to be followed, are covered in bulletin released by News Bureau, General Electric Co., Schenectady, N. Y. Data was prepared by Robert Treat of the company's Central Station Engineering Department.

Correct Broach Use

"Do's and Don'ts on Correct Broach Use", is the name of a set of instructions prepared by Chief Engineer Harry Gotberg, Colonial Broach Company, Detroit. It was prepared in the interest of conserving cutting tools all possible.

Electrode Conservation

Six-point program for electrode conservation, by H. O. Westendarp, welding engineer, General Electric Co., is outlined in release issued by the General Electric's news bureau at Schenectady, N. Y.

* * *

SYNTHETIC RUBBER ART NOT A GERMAN DISCOVERY

German scientists did not discover the modern technique of making synthetic rubber, according to the U. S. Rubber Company. Though the Germans admittedly were the first to use synthetic rubber in tires, their production was small and the product inferior. After the last war, its manufacture was discontinued.

The method, now in general use, is said to have been discovered by rubber chemists in this country, and involves the factor of polymerization of raw material, while in the form of fine droplets in an emulsion with the aid of a catalyst to speed up the process.

The five types of synthetic rubber in common use are as follows: Buna S, the type chosen for the government's synthetic program because it is most similar to havea rubber. It can be processed on standard rubber equipment and substituted for many natural rubber uses. Buna S is being produced by the four largest rubber companies.

Buna N is manufactured in varying grades by different manufacturers, and sold under such names as Chemigum, Hycar, Perbunan and Thiokol RD (but not other Thiokols). It is difficult to process, but the finished product has unusual resistance to oil and other petroleum products, and is being used in hose, mounttings, packings, covered wire and other products.

Neoprene, developed by the Du Pont Company is acclaimed the first commercially successful synthetic rubber in any country. It is a good general purpose product, and is used in thousands of products including wire insulation, barrage balloons, bullet-sealing fuel tanks, truck and bus tires, and in many other uses where natural rubber deteriorates rapidly.

Butyl is a comparatively new type. Raw materials for its production are said to be plentiful, and the production process is said to be simple in comparison with that needed for other types. Butyl is said to lack the strength and resilience of natural rubber, but it is claimed to be impervious to poison gases, a quality that adapts it for many uses.

Thiokol, the fifth of the group, is said to be less like natural rubber than other synthetic types, but it has good resistance to swelling and decay. It is inferior from the standpoint of tensile strength and elasticity. Its qualities are evidenced by its use in the manufacture of paint sprayers and solvent hose, gaskets, printers' blankets, tank linings for aromatic fuels, and as a waterproofing for fabrics.

C. HOWARD DEVILDOG *Barks:*

Everyone understands why he can't get the choice of a full line of Boston Pencil Sharpeners during wartime. Scientific skill, engineering ability, needed materials must go into war production. So, stick to good old model KS for the duration and get all the advantages of Boston Pencil Sharpeners wrapped up in this one economical model.

Yes, and it's the doggy thing to do to buy War Stamps and Bonds with the savings KS brings you!

C. HOWARD HUNT PEN CO., Camden, N. J.

BOSTON PENCIL SHARPENERS

CHECK CAREFULLY— ✓ MEPHISTO

BLUE PRINT CHECKING PENCILS

Made expressly for checking on blue prints, but will also be found suitable for all other checking requirements.

1340 Brick Red	1343 Orange
1341 White	1344 Blue
1342 Yellow	1345 Brown

SET 01340 contains one each of the six colors and was produced at the request of several of the U. S. Government offices.

KOH-I-NOOR Drawing Pencils produce better blueprints.

Send for free catalog No. 11

KOH-I-NOOR PENCIL COMPANY INC.
373 FOURTH AVENUE · NEW YORK

NOT HOW BIG THE MAN . . .

BUT HOW LARGE HIS SHADOW

WITH millions of dead and dying . . . the importance of the individual today would seem small indeed.

Still, maybe the way to measure a man is not by *who* he is, but by *what* he does.

That makes quite some difference.

Take the men and women now at work in the MILLER plant. Day and night they are turning out torpedo parts, bullet jacket metal, Navy wiring devices, gauges, special aircraft parts, searchlights, convoy lights, lenses, special castings, and a multitude of other war goods.

We like to believe the shadow of their usefulness looms large over the war world.

The work they are doing . . . essentially *precision* work with copper and brass and steel and aluminum . . . they do extraordinarily well. They do it by instinctive and developed skill, and by *tradition* . . . for MILLER has almost 100 years to its back in metalworking.

Today their metal craftsmanship is at your command for anything from a bushing to a modern continuous fluorescent lighting system . . . *if you, too, are working for Uncle Sam.* Tomorrow their skill will be available to everyone . . . with full benefit of all they are learning in the interim.

MILLER . . . for precision work in metal

THE MILLER COMPANY, MERIDEN, CONN. . . . rolling brass and phosphor bronze . . . fabricating parts and fittings of metal . . . engineering and manufacturing a complete line of lighting equipment . . . domestic oil burners.

When writing The Miller Company please mention Purchasing

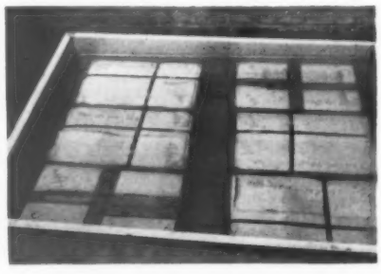
SPARTAN HIGH SPEED
They Last,
Work Fast,
Cut Straight!
SPARTAN
MORE CUTS PER BLADE
High Speed and Kutall Spartans are especially designed for fast and superior cutting service. Their teeth guarantee more strokes and longer hack saw life.
Spartan also makes Flexard, All Hard, and Flexible hack saws; Wood and Metal Cutting Band Saws.
SPARTAN SAW WORKS, Inc., Springfield, Mass., U. S. A.

We can still accept orders for JELLIFF FUEL STRAINERS and other fabricated mesh assemblies
We are shipping thousands now to manufacturers of airplanes and engines but have stepped up production so we can take more orders. Any type, coarse protecting mesh outside, fine mesh inside; single mesh; any metal, any shape, and mesh or weave. Send drawings and specifications for quotation and delivery.
THE C. O. JELLIFF MFG. CORP.
22 Pequot Ave.
Southport, Conn.

DEVELOP WEATHERPROOF CORRUGATED SHIPPER

An outstanding development in waterproof corrugated shipping containers, suitable for both domestic and export shipping, is announced by the Inland Container Corporation, Indianapolis, Ind. The new container not only retains all of the lightweight and economy features of corrugated containers, but in addition, it is said to be remarkably resistant to moisture and water, and much stronger than standard corrugated shippers.

Though similar in appearance to the conventional type box, it differs materially in construction, its corrugating medium



Containers submerged in water

and special liners being combined in precision machine operations with a new adhesive which is insoluble in either fresh or salt water. The paperboard, which was developed by the Southern Kraft Division of the International Paper Company, is of a tough fibrous nature and is claimed to have unusual strength and holding power even though soaking wet.

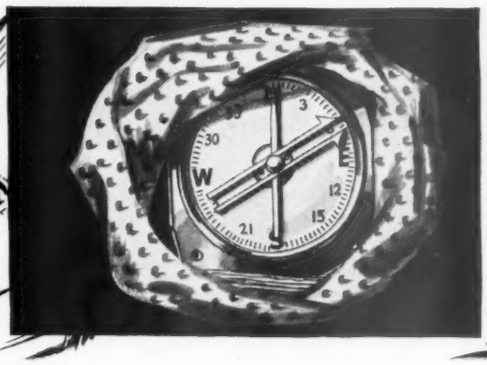
Tests of filled boxes, made by an independent testing laboratory, substantiates the claims of the maker. Corrugated boxes of the new type filled with 48 tall cans of

Container after 50 test drops and submersion for seven days

evaporated milk weighing over 52 pounds to the box, withstood 180 drops against the baffles of a seven foot testing drum before failure. In another series of tests the boxes were subjected to fifty drops in the drum while dry, then submerged in water for seven days, and upon removal from the water again subjected to the drum test, and though soaking wet withstood fifteen additional drops before failure.

It is also claimed that the new boxes will withstand radical changes in temperature, and that they are virtually unaffected by high humidities or condensation. Vice President C. A. Behringer of the

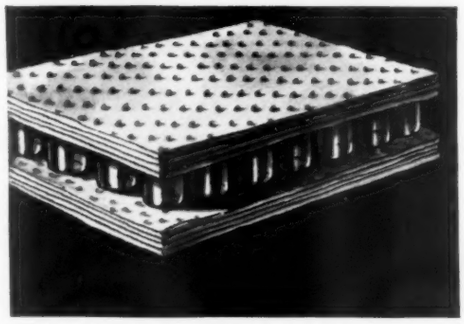
(Continued on page 156)



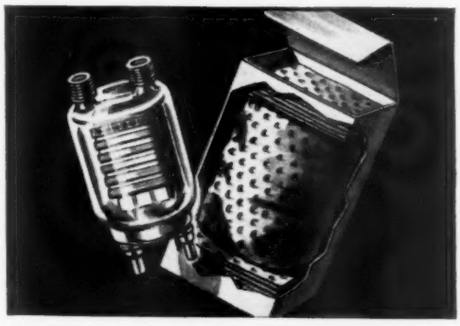
AIRCRAFT INSTRUMENTS are protected in transit by placing thick pads of KIMPAK in bottoms of containers. Strips of KIMPAK are wrapped around both perimeters of instruments; they are placed in containers, covered with additional thick pads of KIMPAK—and are ready for safe shipment.

How Kimpak* protects the arms that protect America

*REG. U.S. PAT. OFF. & FOREIGN COUNTRIES



GLASS CONTAINERS for liquid chemicals are wrapped in sheets of a highly absorbent type of KIMPAK for a two-fold reason: to absorb shocks, jolts and jars that might cause breakage . . . to absorb any leakage that might occur, thus help prevent it from reaching or damaging adjacent material.



RADIO TRANSMITTER TUBES are isolated from vibration and shock by packing carefully, as shown here. Cushioning pads of KIMPAK are placed at tubes' points of contact with top and bottom of containers; sheets of KIMPAK are wrapped completely around surfaces of tubes.

■ Manufacturers of war equipment can't take chances on packing protection. War products and parts of war products must arrive where needed, unbroken and unmarred. Ready for action!

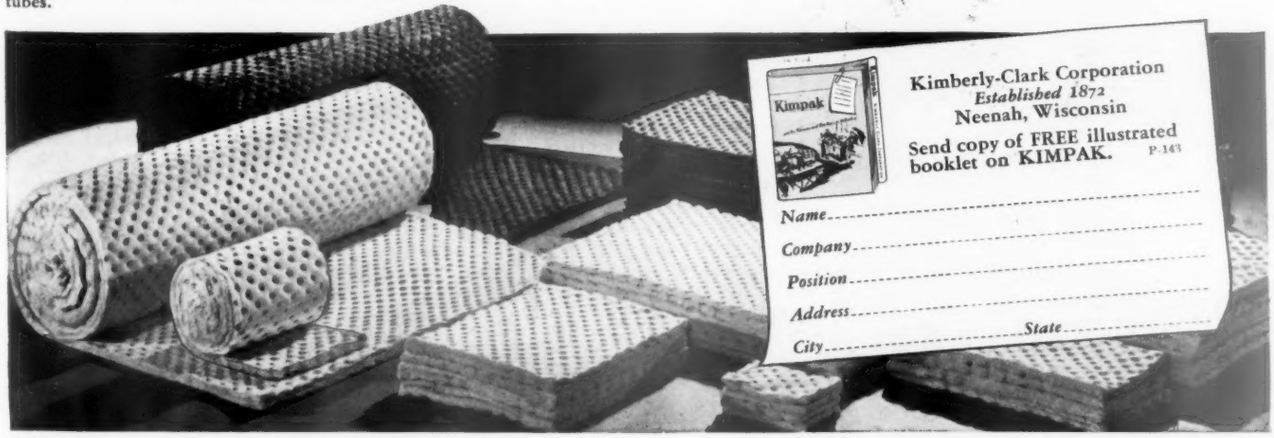
More and more makers of war products are turning to KIMPAK* to protect fighting tools in transit. For here's a remarkable protective material that cushions jolts and jars . . . that absorbs shocks . . . that guards both heavy-weight and light-weight war products against breakage, chipping, chafing. Flexible, soft and grit-free, KIMPAK protects highly polished surfaces from scratches, press markings and "burning". Moreover, one type of KIMPAK comes moisture-resistant to protect overseas shipments against moisture. Another type of KIMPAK is highly absorbent, protects glass containers of liquids during shipment.

Saves Money and Time

Because KIMPAK is extremely light in weight, it saves on freight and handling expense. And being as easy to use as a piece of string, KIMPAK saves valuable time in the shipping room.

KIMPAK Fits Specific Needs

There's a size and thickness of KIMPAK to provide dependable packing protection for war products of metal, plastics, glass and wood . . . whether they're large or small, angular as a machine gun or smooth as a shell. And if a standard specification of KIMPAK won't fit your particular needs—we'll make one that will! Write, wire or telephone today for full details.



*KIMPAK (trade-mark) means Kimberly-Clark Wadding

When writing Kimberly-Clark Corporation please mention Purchasing

PRECISION
Metal Spinnings and Stampings

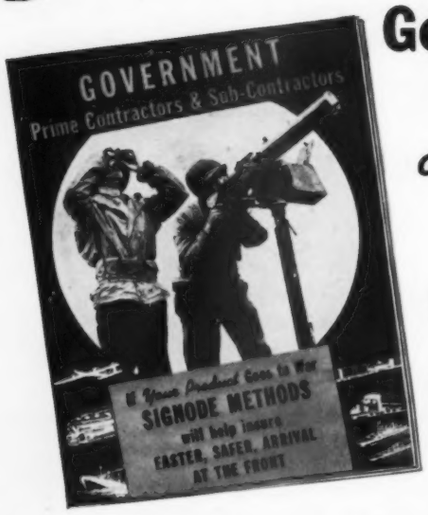
We've been "gittin' thar fustest with the mostest" for a long time in such fields as aircraft instruments, scientific apparatus, radio, motor and electrical, although we've handled everything from clock bezels to mixing bowls in the miscellaneous groups.

ENLARGED PLANT FACILITIES to handle all sizes, all metals and all shapes of Metal Spinnings, Metal Stampings, Deep Drawings, Power Brake Work, Spotwelding, Metal Finishing and Assembly Work.

Maybe parts you're now using be spun or stamped . . . faster, better, and at a saving in cost. Consult with us. If it can be done we'll help you do it!

COMMERCIAL METAL PRODUCTS CO.
2253 W. ST. PAUL AVE., CHICAGO, ILL. • PHONE ARMITAGE 1123
Largest Metal Spinning Plant in the Middle West

SIGNODE SYSTEM OF STEEL STRAPPING



Get This New Bulletin! *on Wartime Shipping*

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Write for it Today

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Shows Methods and Tools Widely Used for Safe, Fast Shipment of Vital Ordnance Materials, Ammunition, etc.

This new bulletin shows how government prime contractors and sub-contractors are using scientific Signode loading methods to assure "on time" delivery of shells, truck bodies, airplanes, inert bombs, life rafts and other vital war products. Also illustrates the Signode Tools used for safe application of Signode Steel Strapping. *Send for it today.*

SIGNODE STEEL STRAPPING CO.
2602 North Western Avenue, Chicago, Illinois
Brooklyn, N. Y.: 371 Furman St.
San Francisco, Calif.: 454 Bryant St.
Representatives in Principal Cities Throughout the United States and Canada

SIGNODE
25 Years of Packing Improvement

(Continued from page 154)

Inland Container Corp. declares that the new type container meets all requirements for a compact, light, rugged shipping container for air shipments, and that it is ideal for export shipping because of these qualities and its economical cost plus the assurance of adequate protection for its contents.

WARTIME INDUSTRIAL FINISHES

The following industrial finishes have been developed by Mass & Waldstein Co., Newark, N. J., as substitutes and products created especially to meet wartime demands: V-Metalustre, which contains a non-metallic lustrous material, to replace metallic-lustre lacquers and enamels formerly made with now unobtainable aluminum powders. Platelustre, applied to polished metals, simulates brass, copper, bronze, color-treated aluminum and steel and other metals. Plydur is a clear or pigmented finish for resin-bonded plywood; said to be extremely resistant to atmospheric conditions, heat or cold, and can be air dried or force dried. Durad Luminous Paint, contains a luminous non-radioactive substance; glows for hours after few minutes exposure to light. Glasshield is a transparent coating that gives glass properties simulating safety glass; glass will not shatter when broken by severe vibration, it is claimed.

NEW OFFICERS OF N.A.M.

New officers of the National Association of Manufacturers to serve with Frederick Coolidge Crawford, and who will take office January 1, are as follows: National vice presidents—Donaldson Brown, Wilfred Sykes, and Stuart W. Cramer, Jr. Regional vice presidents—Thomas J. Hargrave, Rochester; G. W. Mason, Detroit; E. J. McMillan, Knoxville; J. Howard Pew, Philadelphia; A. W. Robertson, Pittsburgh; F. J. Sensenbrener, Neenah, Wis.; Herbert C. Stockham, Birmingham; W. C. Trout, Lufkin, Tex.; Sinclair Weeks, Taunton, Mass.; Howard I. Young, St. Louis; and, J. D. Bellerbach, San Francisco. Walter B. Weisenburger is executive vice president, and Noel Sargent is secretary. Retiring president Wm. P. Witherow, automatically becomes chairman of the board of directors, and Walter D. Fuller, becomes chairman of the executive committee.

UNITED STATES GOVERNMENT AGENCIES MANUAL

New manual on the creation and organization functions and activities of the Federal Departments and Agencies, has been announced. The edition contains 700 pages, and includes a list of principal officials, separate sections on the emergency war agencies, organization charts, etc. It also contains an appendix on agencies abolished, transferred or consolidated since 1935. Copy may be purchased from the Superintendent of Documents, Government Printing Office, Washington, for $1.00. Subscription covering three editions each year is $2.75.

Give it the Gun

FASTER THAN EVER BEFORE

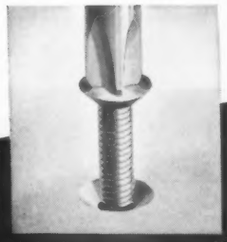
Driver point fits snugly in tapered recess — won't slip out —permits high speed driving.

. . . the AMERICAN Phillips Screw never loses its head under pressure

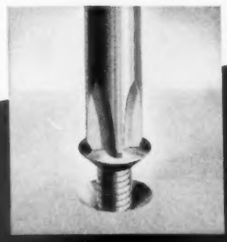
You can bear down on assembly work as hard as you like . . . without worrying about spoilage . . . when you use the double-quick, accident-proof method of American Phillips Screw Driving. You can step up from hand to power drivers. And even your inexperienced help will turn out a perfect job right from the start. The American Phillips Head won't break or burr, because it was engineered to give maximum strength. More, your production will increase as much as 50% . . . you will save operations and materials . . . and your production won't sag toward the end of a shift from fatigue and rejected work. *All that will sag is your cost.*

American Screw Company is supplying our war industries with American Phillips Screws in all standard types, sizes and head styles, and is producing millions of pieces to special specifications. Engineering, laboratory and inspection checking insure top quality in all American Phillips Products. Every American Phillips Screw is dimensionally correct and physically fit.

AMERICAN SCREW COMPANY
PROVIDENCE, RHODE ISLAND
Chicago: 589 E. Illinois Street *Detroit:* 4-258 General Motors Bldg.



FAST STARTING — Driver point automatically centers in the recess . . . fits snugly. Screw and driver "become one unit." Fumbling, wobbly starts are eliminated.



FASTER DRIVING — Spiral and power driving are made practical. Driver won't slip out of recess to injure workers or spoil material. (Average time saving is 50%.)

BETTER FASTENINGS — Screws are set up uniformly tight, without burring or breaking heads. A stronger, neater job results.

Vest Pocket Size

Right Triangle on reverse side

Speed Production Thru Education of Personnel

This Amazing Chart Makes Trigonometry Easy

40 TRIGONOMETRIC EQUATIONS quickly found on TRIG-EASY CHART. All errors through use of wrong equations eliminated. Angles and dimensions determined without knowledge of higher mathematics.

Break the Bottleneck in

Machine Shop — Tool Die — Jig Bore — Patterns Layout — Inspection — Drafting

With TRIG-EASY, every man whose work requires solution of problems involving angles, saves HIS time and time for those who must WAIT for calculations. TRIG-EASY quickly gives you the answer on jobs requiring machine surfaces, holes drilled at angles, etc. Pays for itself in time saved every time it is used. You save calculating time with instant correct equations. Grease-proof and sturdy to resist moisture and dirt. Over 18,000 in use by many of the largest concerns in U.S. and Canada.

TRIG-EASY costs only 50c with complete instructions and MONEY-BACK GUARANTEE. You can speed production thru education of personnel. Send for TRIG-EASY CHART today.

TRIG-EASY
E. H. NEEDHAM
DEPT. K CULVER CITY, CALIF.

QUANTITY DISCOUNTS TO INDUSTRIAL FIRMS

LOWELL
SAFETY-STEEL
WRENCH

THE SAFE AND SURE REVERSIBLE RATCHET THAT WILL SAVE TIME AND MONEY

A New Handle for any broken one returned

MANUFACTURED BY
LOWELL WRENCH COMPANY
Worcester. Mass.. U. S. A.

ARMY-NAVY "E" AWARDS GIVEN MANY COMPANIES

The coveted Army-Navy "E" Flag—symbol of excellence of production through the efforts of management and the rank and file of employees was recently awarded to the B. F. Goodrich Company of Akron, Ohio; Henry Disston & Sons, Inc., Philadelphia, Pa.; Leeds & Northrup Company, Philadelphia; Acushnet Process Company, New Bedford, Mass.; the Jessop Steel Company, Washington, Pa.; and to the Storage Battery Division of Philco Corporation, Trenton, N. J.

Brigadier General Raymond F. Fowler, chief of the supply division office, chief of engineers, U. S. Army, presented the "E" Flag to president John L. Collyer of the Goodrich Company, and Lieut. F. W. Crook participated in the ceremonies as representative of the navy.

Col. D. N. Hauseman, Chief of the Philadelphia Ordnance District presented

Presentation at Henry Disston & Sons, Inc., Philadelphia

the Army-Navy "E" Pennant to S. Horace Disston, president of Henry Disston & Sons, Inc., the navy being represented by Lieutenant Commander J. L. Tinney, Public Relations Officer of the Fourth Naval District.

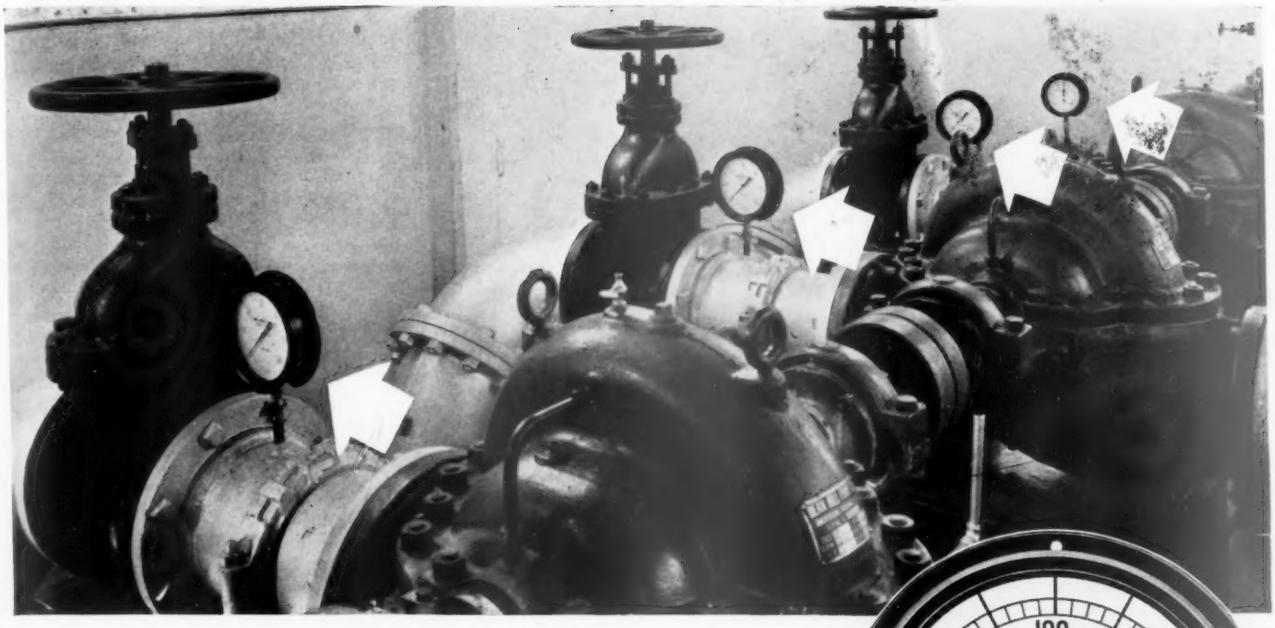
At the Leeds & Northrup Company's plant in Philadelphia, the presentation was made by Admiral Henry A. Wiley, President C. S. Redding of Leeds & Northrup, and Wm. L. Batt, Vice-Chairman, WPB, taking part in the ceremonies.

Philip E. Young, president of Acushnet Process Company was presented with the pennant by Brigadier-General Paul K. English. Senator Joseph E. Francis presided as master of ceremonies at which a large delegation of military officers from Boston was present.

Henry Wilson, Jr., vice president in charge of operations, Jessop Steel Company and R. Earl Jones, an employee, accepted the "E" flag from Lieut. Colonel Thomas H. Eddy, of the Pittsburgh Ordnance District, on behalf of the company and its employees.

High-ranking Army and Navy officials, a color guard from Fort Dix., N. J., several squads of soldiers, and some 1,000 employees of the Philco Corporation were present at the "E" Flag ceremonies at the Storage Battery Division of Philco Corporation, at Trenton. The presentation was made by Admiral Cluverius to M. W.

(Continued on page 160)



"It takes Marsh to build a gauge that will stand up!"

AN operating man said that, and he expressed what hundreds of other practical men have found out about gauges, namely this:

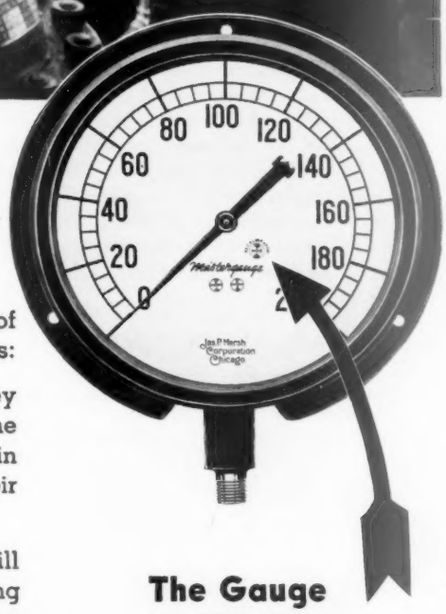
When gauges are new they look a good deal alike, and when they first go into service they work a good deal alike. But under the punishment of daily service you'll find that MARSH Gauges begin to stand out as the kind that can take it and still maintain their original accuracy.

The fact is that it's comparatively easy to make a gauge that will start out accurate, but it takes the knowing design, the careful testing of materials, and the painstaking workmanship taught by 75 years of Marsh specialization, to make a gauge that will *stay* accurate.

And Marsh Gauges not only possess more stamina; they also have the Marsh "RECALIBRATOR"—the only basically sound way to restore accuracy in a gauge when it is thrown out of adjustment by overload or severe shock.

The good attributes of Marsh Gauges, including the "Recalibrator", are found in Marsh Dial Thermometers. There is a Marsh Gauge, Thermometer, or Recorder for practically every pressure or temperature measurement requirement.

JAS. P. MARSH CORP., 2054 Southport Ave., Chicago, Ill.



The Gauge with the "RECALIBRATOR"

● The Marsh reputation for building superlative gauges has been further heightened by the introduction of the Marsh Mastergauge, illustrated above. Here is a gauge that gives new meaning to accuracy and stamina under the most extreme service conditions. The "Recalibrator", pointed out above, is available in all Marsh Gauges and Dial Thermometers.

FULL STEAM AHEAD

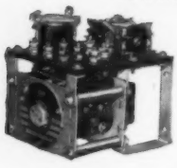
MARSH GAUGES

DIAL THERMOMETERS ★ RECORDERS ★ HEATING SPECIALTIES

The oldest manufacturer—the newest ideas

When writing Jas. P. Marsh Corp. please mention Purchasing

Battleship U.S.S. Texas firing main battery broadside. U.S. Navy Official Photo.



IT'S IN THE NAVY NOW

We can tell you about this motor driven, time delay relay because it has been used for years in peace time activities as a time control in drying systems, heat treating ovens, illumination and many other applications.

Now it's in the navy. The positive action, ruggedness and resistance to shock and vibration of this relay, make it ideal for alarm control, communication circuits and for the protection and timing of many kinds of equipment aboard ship. Manufacturers who are doing essential war production can often find items in the regular line of Ward Leonard Controls that will serve their needs without the delay of extensive redesigning.

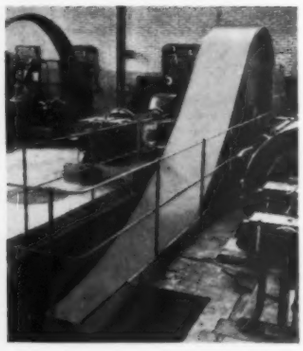
WARD LEONARD

RELAYS • RESISTORS • RHEOSTATS

Electric control (WL) *devices since 1892.*

WARD LEONARD ELECTRIC COMPANY, 50 SOUTH ST., MT. VERNON, NEW YORK

for PRIMARY DRIVES . . . for MODERN GROUP DRIVES . . . for PIVOTED MOTOR BASE DRIVES



TANNATE LEATHER BELTING

BOOSTS PRODUCTION

FROM MACHINES OLD or NEW!

Tannate maintains top speeds even at peak loads . . . Grips tightly, delivers more power, keeps machines running smoothly with fewer shutdowns for drive maintenance.

And, high temperatures, moisture, machine oils and many chemicals have little effect on Tannate leather belting.

It will keep its grip and great strength under adverse operating conditions . . . Tannate will give you longer belt life and lower yearly belt cost . . . Will send production upward; and give you more uniform work, less spoilage, with fewer shutdowns and reduced unit costs.

Give Tannate a trial in your plant —for peak efficiency and trouble-free drives!

STEP UP PRODUCTION WITH RHOADS *Established 1702*

Tannate

WATERSHED LEATHER BELTING

J. E. RHOADS & SONS

35 N. SIXTH ST., PHILADELPHIA, PA.

New York Chicago Atlanta Cleveland

(Continued from page 158)

Heinritz, General Manager of the Storage Battery Division, and George Demp and Max Hart, the oldest Philco employees in point of service. Colonel Oscar C. Maier, director of the Signal Corps General Development Laboratory at Fort Monmouth, N. J., presented silver Army-Navy "E" insignia to plant Manager E. W. Buckley, Hilda C. Wiegand representing the woman employees and to C. F. Bradley, president of the United E. R. M. W. of America, Local 108.

The Macwhyte Company of Kenosha, Wis., and its employes have been awarded the Army-Navy E Flag for excellence in the production of war materials. Official notification of the award from Robert B. Patterson, Under Secretary of War, stated in part: "The award consists of a flag to be flown above your plant and a lapel pin which every man and woman in your plant may wear as a symbol of high contribution to American Freedom". Plans are under way for a special ceremony at which Army and Navy officers will present the award.

SAVING COPPER

More than 51,000 feet of large-size copper cable, (about nine miles) was saved by the installation of one 1500-kva General Electric unit substation at an East-

Connecting high voltage cable at unit substation

ern war plant. The unit substation was installed at a load center which ordinarily would have required 56,000 feet of cable and thirty-three 500,000-cm cables from the load area to the power station, but in lieu thereof only three high voltage 500,000-cb cables requiring but 5100 feet of cable were necessary.

FOUNDRYMEN'S ASSOCIATION SCHEDULES ANNUAL MEETING FOR NEXT APRIL

The American Foundrymen's Association announces that its 47th annual meeting will be held in St. Louis, April 28, 29 and 30, 1943, and terms the meeting as a mobilization of management, technical and operating men for the purpose of devising ways and means for extending the use of cast metals in the war effort. Hotels Jefferson and Statler have been designated as joint headquarters for the convention

VITAMINS B2

FOR STEEL

TITANIUM ALLOY MANUFACTURING COMPANY announces the production of two **Boron**-containing alloys for imparting deep hardenability to steels and for the conservation of other elements less available today than in other years.

It is necessary to introduce only minute amounts of **Boron** in fine-grained forging steels in order to obtain surprisingly intense hardenability, good ductility and superior toughness, as well as high strength (after hardening and drawing at low temperatures, such as 450° or 600° F.)

To realize these highly desirable qualities, only a few pounds of "BORTAM" (a complex alloy) are needed per ton of steel. (Note: "Bortam" is restricted to war production applications only.)

An exceedingly economical alloy to use in steel to produce deep hardenability, as well as other superior physical properties, is "CARBORTAM" (a less complex high-carbon alloy containing **Boron** and the well-known nitrogen stabilizer, Titanium.)

ANALYSIS

"BORTAM"	
Ti	16-18%
Al	13-15%
Mn	22-24%
Si	20-25%
C	Less than 1%
B	1.5-2.0%

"CARBORTAM"	
Ti	16-17%
Si	2.50-3.00%
C	6.5-7.5%
B	1-1.25%

FOR FURTHER PARTICULARS FOR APPLICATIONS TO MEET YOUR SPECIFIC PROBLEMS, WRITE TO:

TITANIUM

ALLOY MANUFACTURING COMPANY

TAM ZIRCONIUM TITANIUM PRODUCTS Registered U. S. Pat. Off.

GENERAL OFFICES AND WORKS: NIAGARA FALLS, N. Y., U. S. A.
EXECUTIVE OFFICES: 111 BROADWAY, NEW YORK CITY

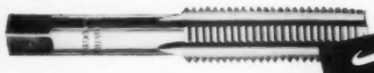
Representatives for the Pacific Coast . . . BALFOUR, GUTHRIE & CO., San Francisco, Los Angeles, Portland, Seattle, Tacoma
Representatives for Canada . RAILWAY & POWER ENG. CORP., Ltd., Toronto, Montreal, Hamilton, Winnipeg, Vancouver, Sydney
Representatives for Europe . . . . . T. ROWLANDS & CO., Ltd., 23-27 Broomhall St., Sheffield, England

When writing Titanium Alloy Manufacturing Company please mention Purchasing

Thanks a million..... you've saved us an indefinite tie-up

EXCERPT FROM CUSTOMER'S LETTER

Words like the above have meant much to us at Threadwell. Months ago we knew that it was not enough to have all our wheels turning. We knew it was not enough to sort and pile and route the orders according to priority ratings. That was expected of us. But we felt that we could do more than that. We felt that we could and should break bottlenecks by giving PERSONAL ATTENTION to each order. We have done so. And it has produced results. It has (in some cases) put taps onto the job the next day instead of months later. In all this we have worked hand in hand with a great expediting force . . . our Threadwell distributors. We share with them the satisfaction of doing more than was expected of us.



Threadwell

THREADWELL TAP AND DIE COMPANY, GREENFIELD, MASS.

SALES AGENTS
Canada: Bridge Machinery Co., Montreal
England: Skylux, Ltd., London

Guard Against Fire with

WITT

OILY WASTE CANS

A fire in your plant is sabotage, today. You can't afford it — any time.

Play safe, use your WITT Oily Waste Cans at convenient places throughout your plant for the disposal of oil soaked rags and other inflammable refuse.

Promote safety and cleanliness.

***The* WITT CORNICE CO.**
WINCHELL Ave., CINCINNATI, Ohio

Made in seven sizes:
5 - 6¾ - 8¼ - 12 - 14¾ - 22 - 30½ gallons capacity.

AMONG THE PEOPLE YOU BUY FROM

The Blaw-Knox Company, Pittsburgh Pa., has been selected by the Defense Plant Corporation to prepare the fundamental engineering designs for the co-polymerization plants for the entire synthetic rubber program. Blaw-Knox Construction Company is engaged in the engineering and construction of six plants for the manufacture of synthetic rubber from butadiene and styrene, four of which are completely new installations.

William H. Knight has been appointed director of sales and market research for the Elastic Stop Nut Corporation, Union, N. J. Knight was formerly vice president of Electric Household Utilities Corp., Chicago, and prior to that was a sales executive for the Firestone Company of Akron.

Russel L. Whitney is now Sales Manager, Transformer Division, Sharon, Pa., of the Westinghouse Electric & Manufacturing

Lauson Stone, President. Follansbee Steel Corporation, Pittsburgh

Co. A. C. Farmer, formerly assistant sales manager, has been named assistant to Vice President H. V. Putman, of that division, and A. P. Bender, former sales manager, has been made assistant sales manager "to afford him the best possible opportunity to recover from an extended illness."

Ernest Hollmuller was recently elected president of the John Reber Pastry Company, New York, N. Y.; Louis L. Sommer, vice president; Ernest Luechinger, second vice president, and, Joseph Sliwoski, secretary-treasurer.

Eicor, Inc., Chicago, manufacturers of dynamotors, D. C. motors and other electrical apparatus, recently moved into a new DFC building at Congress and Laflin streets, that city.

C. A. Babbitt of Norton Company, Worcester, Mass., has been appointed Field Engineer for the territory comprising New York City, New Jersey and Philadelphia. He will make his headquarters at the Norton Philadelphia office.

Thomas J. Mulvey has been appointed production manager of the General Electric's River Works, at Lynn, Mass.

George D. Gilbert has been made General Manager of Baldwin Duckworth, a divi-

(Continued on page 164)

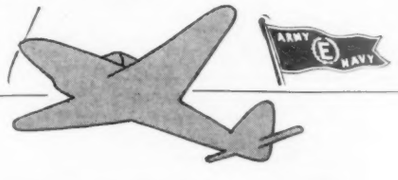
THE HEADLINE STORY YOU'LL NEVER READ

Eating into cold, hard metal... never stopping... this machine turns out a vital airplane part every few seconds. Its work day is 24 hours long... *every* day. Month after month, this machine, and other thousands like it, are playing a mighty part in winning the war. Yet, you'll never read their story in your evening paper!

In the workhead of these machines are Fafnir Ball Bearings... hard-working, dependable bearings which must hold tolerances on the nose under ceaseless punishing conditions. There is no time to "baby" them.

They, like millions of other Fafnirs, are *staying on the job,* are helping America's industrial machines to establish performance records that match... deed for deed... the more spectacular, "newsy" records of Fafnir-equipped tanks, planes and guns.

Wherever you find outstanding performance, you'll usually find Fafnirs. The Fafnir Bearing Company, New Britain, Connecticut.



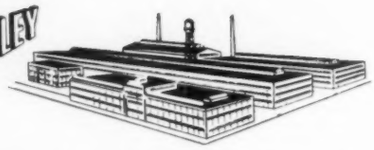
FAFNIR

BALL BEARINGS

THE BALANCED LINE - FOR ORDNANCE, AIRCRAFT AND INDUSTRIAL MACHINERY

When writing The Fafnir Bearing Company please mention Purchasing

RIGHT DOWN OUR PRODUCTION ALLEY



We want WAR SUB-CONTRACT work!

We need work — you need help — let's get together.

Stewart has enormous manufacturing and ample shipping facilities for production runs of units or parts of units fabricated from angles, flats, tees, rounds, squares, sheets, strips, and plates involving the use of equipment listed at the right.

Stewart offers competent engineering service; on time deliveries; best workmanship and the highest financial rating obtainable. When writing, please send specifications and complete information.

PRODUCTION FACILITIES

Punch Presses • Shears
Power Brakes • Spot, Arc and Gas Welders
Drill Presses • Bull Dozer Forming Equipment
Automatic Saws • Heat Treating Furnaces • Finishing Equipment • Tool Room Equipment.

Stewart FABRICATORS OF IRON · STEEL · WIRE
ANGLES • FLATS • ROUNDS • SQUARES • TEES • STRIPS • SHEETS • PLATES

THE STEWART IRON WORKS CO. Inc.
1961 STEWART BLOCK
CINCINNATI, OHIO

(Continued from page 162)

sion of Chain Belt Company, Milwaukee. Baldwin-Duckworth operates plants in Springfield and Worcester, Mass., manufacturing machine finished roller chain and sprockets. William H. Gates is Works Manager of the B-D Division.

Harry Crump, for the past 26 years with General Electric Company in Schenectady, has joined the Carboloy Company, Inc., Detroit, as assistant to Sales Manager K. R. Beardslee.

Fred E. Goldsmith, former Chief Engineer for the Borden Farm Products Co., New York, is now associated with Walter Maguire Company, Inc., New York, manufacturers of Cortland emery aggregate flooring.

John G. Porter has been placed in charge of all sales promotion activities of the Transmitter and Electronic Tube Divisions of the General Electric Radio, Television and Electronics Department, Schenectady, New York.

Lauson Stone has resigned as assistant to the president of Jones & Laughlin Steel Cor., to become president of Follansbee Steel Corporation, Pittsburgh, succeeding W. T. Brownscombe who has resigned because of ill health.

Industrial Sales Department and Distributors' Sales Department are recently created divisions of the Libbey-Owens-Ford Glass Company's sales organization, according to announcement by George P. MacNichol, Jr., vice president in charge

(Continued on page 166)

A Safer HAND CLEANER FOR HER? You Bet!

Her skin is more sensitive. Yet her hands get just as dirty as those of the men she replaces in your plant.

She needs a *safe* hand cleaner because she is even more subject to dermatoses and infections caused by harsh hand cleaning compounds than men workers. And, you know the heavy toll we have paid and are paying in lost time and priceless production due to industrial dermatoses!

For her hands, Magnus Superfine has the same speedy, safe cleaning action as Magnus Regular or Magnus Heavy Duty Hand Cleaner for men's hands.

All Magnus Hand Cleaners are free from the harmful abrasive action which is such a source of trouble with poorly chosen hand soaps. They contain no strong chemicals which rob the skin of natural oils. But, they clean hands in jig time, without needless and dangerous scrubbing or brushing. And, they rinse off completely, leaving soft, smooth hands which are less liable to chap or crack.

ASK FOR YOUR COPY OF BULLETIN 51

The *facts* about safe hand cleaning, without frills or sales pressure!

DESIRABLE TERRITORIES AVAILABLE

Man-power losses to Armed Services have created vacancies. High-caliber men may apply, giving full details of self.

MAGNUS CHEMICAL COMPANY

Manufacturers of Cleaning Materials, Industrial Soaps, Metallic Soaps, Sulfonated Oils, Emulsifying Agents and Metal Working Lubricants.

99 South Avenue **Garwood, N. J.**

Service Representatives In All Principal Cities.

Magnus CLEANERS

MAILING BAGS

Makes Easy Mailing of Hard-to-Wrap little things

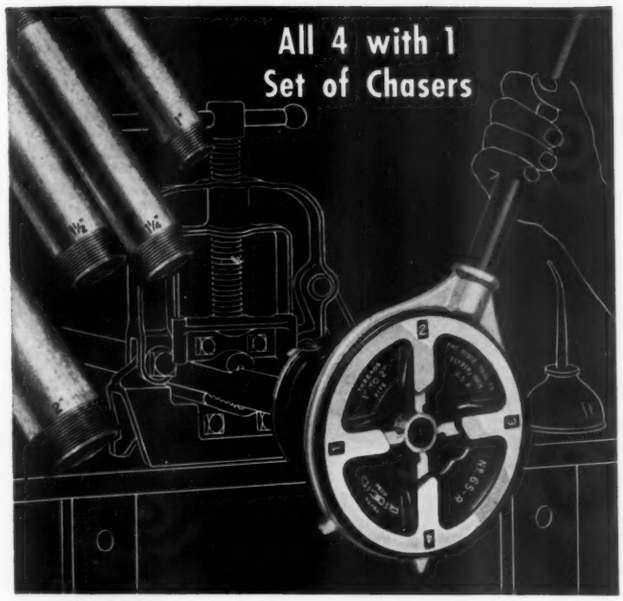
RED TYE

All Sizes All Kinds
FABRIC BAGS with and without TAGS or ENVELOPES

Bulky packages cost more. Avoid unnecessary expense and trouble by using sturdy Chase Mailing Bags. For nuts, bolts, spare parts, samples, odd shaped articles. Eliminate "under separate cover"!

Write for prices!

CHASE BAG CO.
302 EAST PITTSBURGH AVE.
MILWAUKEE, WIS.
One of thirteen great factories

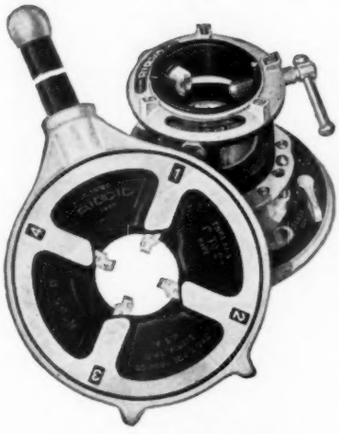


Perfect THREADS

Faster and Easier with this self-contained

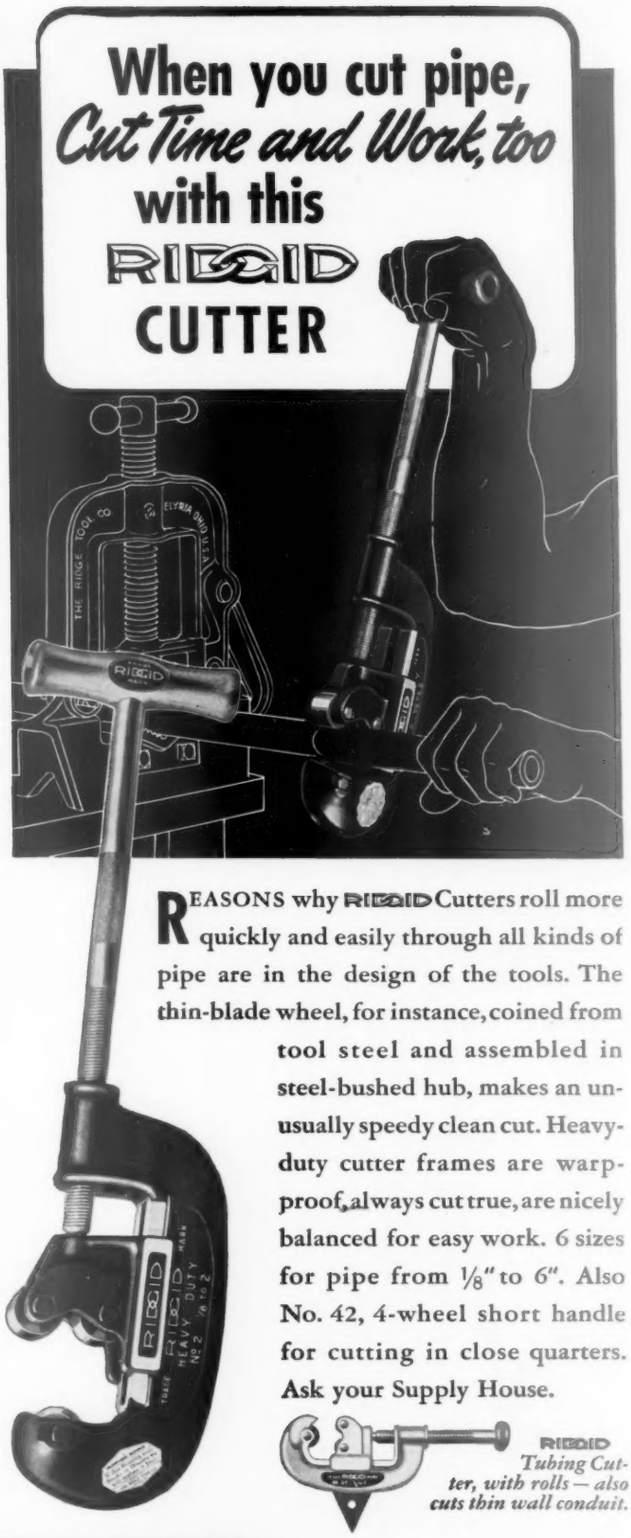
RIDGID No. 65R

THREADS you cut with this remarkable No. 65R are clean, sharp and of micrometer accuracy — *in all 4 sizes,* 1" to 2" — a new quality in a self-contained die stock. But you'll like also the easy floating cutting action, the 10-second change to pipe size, the instant mistake-proof work-holder without bothersome bushings. It's a rugged steel and malleable tool with high-speed steel and chaser dies, assuring you long trouble-free service. It pays you to ask your Supply House for the RIDGID 65R.

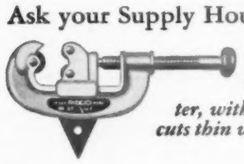


No. 65-R, ratchet and plain, one and two handle, cam or plate type workholders.

When you cut pipe, *Cut Time and Work, too* with this RIDGID CUTTER



REASONS why RIDGID Cutters roll more quickly and easily through all kinds of pipe are in the design of the tools. The thin-blade wheel, for instance, coined from tool steel and assembled in steel-bushed hub, makes an unusually speedy clean cut. Heavy-duty cutter frames are warp-proof, always cut true, are nicely balanced for easy work. 6 sizes for pipe from 1/8" to 6". Also No. 42, 4-wheel short handle for cutting in close quarters. Ask your Supply House.



RIDGID *Tubing Cutter, with rolls — also cuts thin wall conduit.*

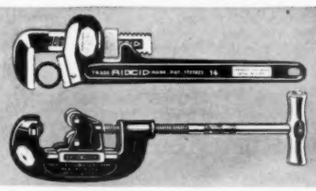
All RIDGID Pipe Tools are sold through Supply Houses

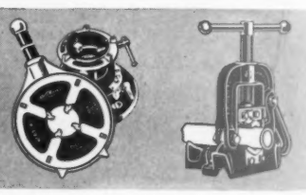
RIDGID

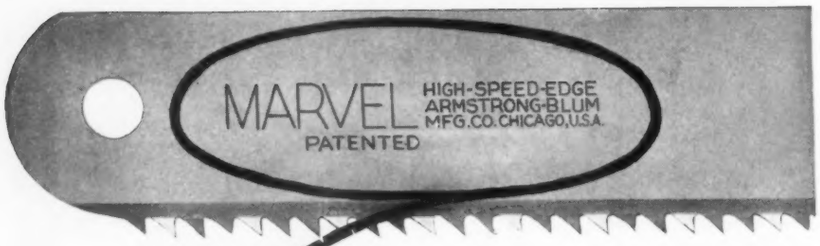
★ PIPE TOOLS ★

Fast-Working Tools for War . . . and the Busy Peace that's Coming

THE RIDGE TOOL COMPANY
ELYRIA • OHIO • U.S.A.







Purchasing Agents Too Can Speed Production

By standardizing on these *Positively Unbreakable* hack saw blades that permit all hack sawing machines to operate at maximum speed and maximum feed, you can increase the output of every hack saw in your plant. In MARVEL High-Speed-Edge Hack Saw Blades the fastest cutting, longest lasting cutting edge has been welded to a body of tough alloy steel. This composite construction gives strength to stand up to any load, and assures that each blade will last the full life of its cutting edge. Buy MARVEL High-Speed-Edge Hack Saw Blades from your local industrial distributor.

ARMSTRONG-BLUM Mfg. Co.
"The Hack Saw People"
5700 Bloomingdale Ave., Chicago, U. S. A.
Eastern Sales Office: 225 LaFayette St., New York

MARVEL SAWS

(Continued from page 164)

of sales. The Industrial Sales Department is headed by G. L. Conley, formerly Eastern sales manager, with George Hill Jr. as assistant. The Distributors' Sales Department is headed by E. M. Everhard, formerly Western Sales Manager, with E. C. Walbridge as assistant. John M. Johns, formerly in charge of aircraft glass sales, is now assistant to Mr. MacNichol.

Dan C. Hungerford has been elected president and general manager of the Aircraft Development Corporation, Summit, N. J., according to announcement by the Board of Directors. Until recently when he resigned to help organize the corporation he now heads, he was vice president of the Elastic Stop Nut Corporation.

(Continued on page 170)

LARGE GAIN IN RETAIL INVENTORY VALUES

Twenty representative retail lines showed an average gain of twenty-two per cent in inventory dollar values during the twelve months ended June 30, according to findings of a survey of the Dun & Bradstreet Research and Statistical Division. The survey covered more than 5000 retailers throughout the country, most of whom were interviewed by the Agency reporters. Department stores with a 73% gain almost doubled the gains of women's ready-to-wear shops. Inventory reduction occurred where it was most expected in the lumber and building materials and filling station categories. For most of the

(Continued on page 168)

Vital Links in modern Production

ALLIED MACHINE & ENGINEERING CORP.
NEW PHILADELPHIA, OHIO

Permanently Accurate
Torque Wrenches

A Complete Line

of permanently accurate measuring and gauging wrenches that are standard in leading war plants for gauging and controlling torque in production and for testing and measuring in inspection. Indestructible taper beam construction. Double scale visible from all working angles. Capacities from 0 to 7200 inch pounds.

NO Friction Adjustments Moving Parts Fragile Mechanisms

Write for Bulletin

P. A. STURTEVANT CO.
ADDISON QUALITY ILLINOIS

THERE'S A LESSON IN THIS WAR . . .

FOR MACHINE TOOL USERS!

The war proves that light, fast PT boats and destroyers are as important a part of a fighting navy as heavy battleships. In war plants, too, industry finds that Walker-Turner fast, compact, well-built machine tools are as essential to today's enormous production program as the heavier units. Management, alert to improved methods, shows growing preference for Walker-Turner Machine Tools because: (1) They are quickly available, (2) Their weight conservation is effected by careful design and discriminating selection of material, (3) Prices are low, (4) Unskilled labor finds them easy to operate.

Our new catalog will give you a better idea of this vital industrial development.

WALKER-TURNER COMPANY, INC.
Berckman Street, Plainfield, N. J.

A Radial Drill for light drilling, tapping, routing. Price $352.50. Drills to center of 62" circle. Head tilts to 45° right or left. Spindle speeds 160 to 8200 r.p.m.

walker-turner
COMPANY, INC.
PLAINFIELD, N.J.
U.S.A.

MACHINE TOOLS

DRILL PRESSES — HAND AND POWER FEED • RADIAL DRILLS
METAL-CUTTING BAND SAWS • POLISHING LATHES • FLEXIBLE SHAFT MACHINES
RADIAL CUT-OFF MACHINES FOR METAL • MOTORS • BELT & DISC SURFACERS

When writing Walker-Turner Company, Inc. please mention Purchasing

(Continued from page 166)

twenty trades covered by the survey, inventories at the midyear point registered a more rapid increase than sales volume.

Indebtedness trends indicate that the majority of retailers in almost all trades have seized the prosperity-born chance to reduce debts. See table below:

Summary of 20 Trades (not including Motor Vehicle Dealers)
(Based on reports from 5,075 Concerns)
—PER CENT CHANGES IN DOLLAR VALUE (*) OF—

Type of Store	Sales 1st half 1942 vs. 1st half 1941	Inventory June 30, 1942 vs. June 30, 1941	Indebtedness† June 30, 1942 vs. June 30, 1941
Department Stores	+14	+73	
Women's Ready-to-Wear	+24	+41	+ 6
Furniture Stores	+ 7	+36	—17
Men and Boys' Clothing	+29	+34	+ 4
Restaurants	+11	+26	—25
Jewelry	+26	+23	—11
Independent Variety	+22	+23	+ 3
Family Clothing	+27	+22	— 7
Coal and Fuels	+27	+21	+ 4
Grocery and Meat	+22	+21	— 8
Dry Goods & Gen'l Mdse.	+29	+20	— 7
Shoe Stores	+25	+18	+ .2
Grocery Stores	+13	+14	—17
Drug Stores	+17	+11	— 7
General Stores (with food)	+23	+10	—12
Household Appl. Dealers	— 8	+10	—37
Automotive Access. & Parts	+12	+ 8	—41
Hardware	+25	+ 4	—21
Lumber & Bldg. Materials	+12	— 6	—30
Filling Stations	— 3	— 7	—19
Twenty Retail Trades	+15	+23	—13

(*) Trends weighted according to relative importance of trades and size groups within each trade as shown by 1940 Census of Distribution.
(†) Indebtedness trends, by their nature, tend to be irregular.

Specify GRIFFIN Hack Saw Blades

FOR YOUR METAL CUTTING JOBS

Now when every minute counts, the men who cut metal are finding GRIFFIN BLADES are the answer for results.

Their consistently uniform performance has made GRIFFIN the "buy word" among mechanics who appreciate dependability. The next time you order, specify GRIFFIN. Distributors everywhere have a GRIFFIN BLADE for every metal cutting job.

by G. W. GRIFFIN CO., Franklin, N. H.

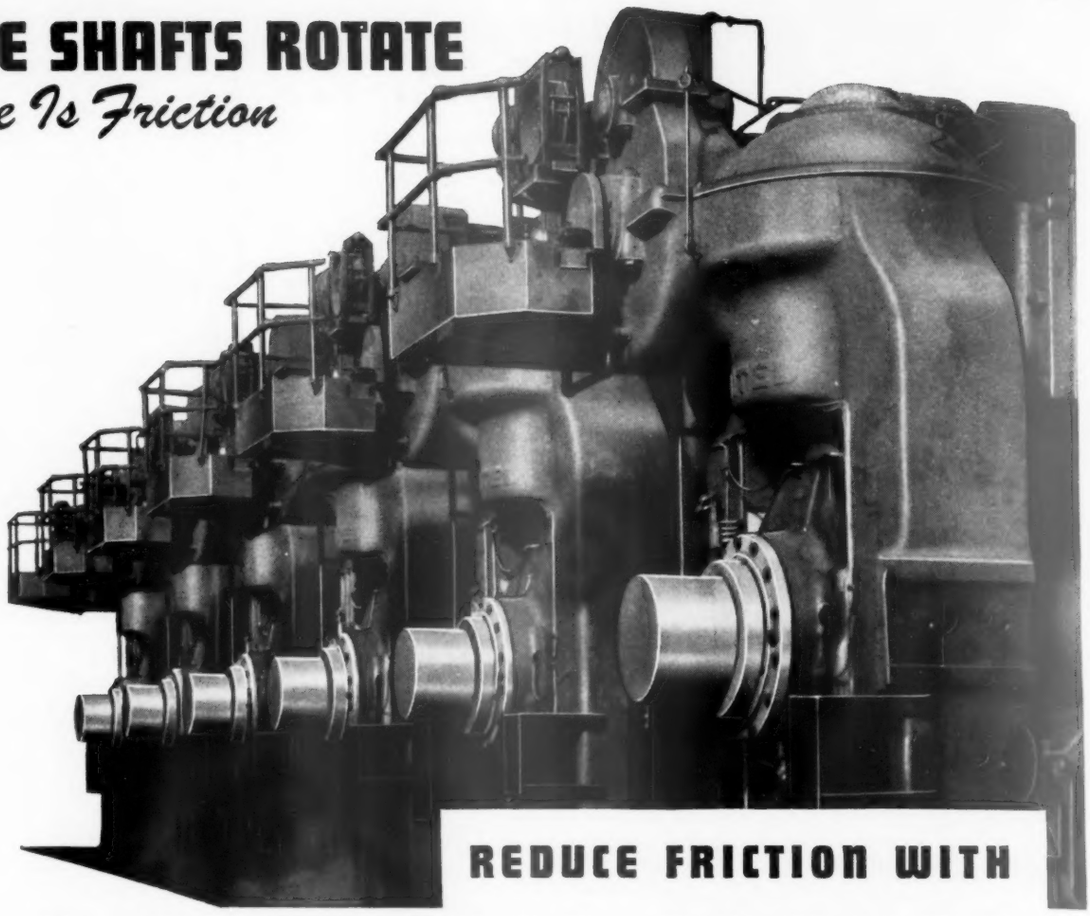
JOHN H. GRAHAM & CO. INC.
General Sales Agent
105 DUANE STREET — NEW YORK CITY

JOHNSON XLO Music Wire

Complete stock in Worcester, Akron and Los Angeles warehouses.
Standard mill coils—25 to 100 lbs.
Packages—¼ lb., ½ lb., 1 lb.
Wire sizes from .003 to .200.

JOHNSON STEEL & WIRE CO., INC.
WORCESTER ★ MASSACHUSETTS.

WHERE SHAFTS ROTATE
There Is Friction



REDUCE FRICTION WITH
N·B·M "TIGER" BRONZE AND "REX" BABBITT METAL

EVERY manufacturer is seeking means to keep his machinery going for the duration, with a minimum of repairs. We can help you prolong the life of your bearings.

Bushings and Bars of "TIGER" Bronze are highly anti-frictional because of the even distribution of its ingredients, especially of lead.

"REX" Babbitt Metal contains the highest tin content now generally permitted by government regulations. Properly applied, it will help you keep your machinery in smooth and quiet operation.

Write for our re-babbitting chart and "TIGER" Bronze list showing the hundreds of sizes of cored and solid bars available—rough and machined.

NATIONAL BEARING METALS CORPORATION

ST. LOUIS • NEW YORK

PLANTS IN: ST. LOUIS, MO. • PITTSBURGH, PA. • MEADVILLE, PA. • JERSEY CITY, N. J. • PORTSMOUTH, VA. • ST. PAUL, MINN. • CHICAGO, ILL.

When writing National Bearing Metals Corporation please mention Purchasing

OVER 60

DIFFERENT, SPECIALLY DESIGNED, HIGH QUALITY
OAKITE MATERIALS
to help you in
PRODUCTION, MAINTENANCE AND SANITATION CLEANING

Use This Dependable Supply Source to Help Simplify Your Production Planning!

Today, production begins with purchasing. Before manufacturing schedules can progress smoothly, you must know, for example, whether or not essential cleaning materials are obtainable. . . in sufficient quantities . . . WHEN you need them. Here is how Oakite War-Time Service HELPS YOU solve these important questions.

Warehouse stocks of Oakite degreasing materials are maintained at strategic centers across the Nation. Deliveries are made as promptly as available facilities of common carriers permit under war-time conditions. Moreover, you get the individual, personal help of our nearby Technical Service Representative, plus the cooperation of our Chemical Research and Mechanical Engineering Laboratories. Write, 'phone, or wire. Inquiries promptly answered.

OAKITE PRODUCTS, INC.
54 Thames Street, NEW YORK, N. Y.
Representatives in All Principal Cities of the United States and Canada

OAKITE
Certified CLEANING
MATERIALS... METHODS... SERVICE

(Continued from page 167)

Charles Nelson, Jr., has been appointed chief engineer of the Ahlberg Bearing Company, Chicago, in charge of bearing design and development work, having been promoted from position as Assistant Chief Engineer.

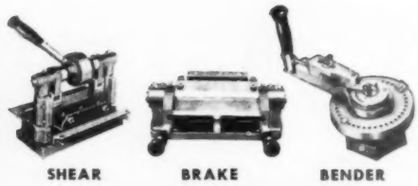
Angus G. Scott is the new sales manager of the Derry, Pa., Porcelain Department of the Westinghouse Electric & Manufacturing Co.

Board of Directors of Hercules Powder Company, declared a year-end dividend of 90¢ a share on common stock, payable December 21 to stockholders of record at the close of business Dec. 10.

John L. Schmeller, formerly executive vice president of the National Bronze & Aluminum Foundry Company, Cleveland, was recently elected president of that company. Also elected were: W. F. Muth, vice president and secretary; George N. Wright, vice president; George N. Hilliard, comptroller.

R. M. Severance, owner of Severance Tool Company, announces formation of Severance Tool, Inc., to take over the operation of all Severance branch plants which are located in Los Angeles, Chicago, New York, Detroit and Fort Wayne, and a new plant being opened in Springfield, Mo. Mr. Severance is chairman of the board of the new corporation, and the officers are: President, John A. Wright, Saginaw; vice president and treasurer, George E. Hedberg, Bay City; Secretary, E. Elmer Staub, Detroit. Main offices are in Saginaw, Michigan.

DI-ACRO
"DIE ACCURACY WITHOUT DIES"
PRECISION MACHINES



The DI-ACRO SYSTEM *of*
METAL DUPLICATING
—without Dies!

For 1 piece—500—5,000 or 50,000—here is fast die-less duplicating accurate to .001". Save man hours and critical materials. *Write for Catalog*

O'NEIL-IRWIN MANUFACTURING CO., 305 8th Ave. S., Minneapolis, Minn.

A C and D C
GENERATORS

1,000-5,000 WATTS.
PROMPT DELIVERIES.
BUILT TO FIT YOUR NEEDS.

17 years specialized experience in manufacturing electrical generators of all types. Send us your specifications and let us quote you.

WIND POWER MFG. CO.
Since 1925 DEPT. B, NEWTON, IOWA

WASMER *Tru-Fit*
NUTS & BOLTS
CAP SCREWS
SET SCREWS

WASMER BOLT & SCREW CORP.
13600 ATHENS AVE. CLEVELAND, O.

Service for customers was kept constantly in mind when the building above was designed for the Kingsport Electric Co, Inc., at Kingsport, Tenn. Its arrangement now helps speed cooperation on war projects. Industrial apparatus and wiring supplies are specialized in together with lamps and fans. At top: J. B. Carson, president of the Company at quotation desk.

Look to G-E WIRING MATERIALS DISTRIBUTORS

For Wiring Supplies to Aid War Production

G-E Wiring Materials Distributors are eager to help you keep your plant geared for the utmost war assistance. Now, as never before, electrical power must flow to industrial equipment without interruption.

Ask a representative of the G-E Distributor in your territory about materials that will be ideally fitted to your needs. His experience will enable him to help you solve wiring problems and make selections of materials.

Good service is aided by the bigness of the G-E line. It contains 5 different conduits, 4 different types of building wire and hundreds of wiring devices and boxes and fittings. It is the only complete line on the market. Your G-E Wiring Materials Distributor can provide suitable electrical supplies to help speed your plant's war production.

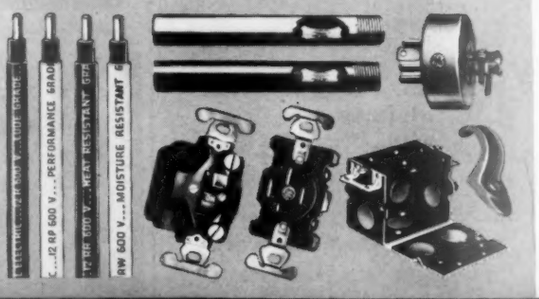
Ways to help customers are studied at Allentown, Pa., General Electric Supply Corporation meetings. Above Gordon Woll, sales manager holding a Fiberduct underfloor wiring demonstrator is reviewing advantages of Fiberduct for factory underfloor electric distribution. Salesmen, left to right. H. J. Wetteran; Mr. Woll, H. A. Parsons, Jr., H. H. Kelly, R. K. Buchert.

C. P. Guercio, shipping clerk, General Electric Supply Corporation, New York City is shown here checking requirements for next truck deliveries. Storage, handling and delivery methods are designed to give customers the best possible service.

J. Albert Hayden, (left) salesman for the Raub Supply Co., Harrisburg, Pa., is here bringing information on G-E wire for industrial lighting to H J. Hunter, estimator for the Howard P. Foley Co., Harrisburg electrical contractor.

FOR G-E WIRING MATERIALS

See your G-E Wiring Materials Distributor about conduit, wire and cable and wiring devices. He is eager to serve you.



GENERAL ELECTRIC

When writing General Electric Company please mention Purchasing

• NEW PRODUCTS •

SUPERFINISHING MACHINES

■ Recent improvements have been made on the Foster 4" x 18" general purpose superfinishing machine, and a new and longer 4" x 36" Model has been added to the line of machines offered by The Foster Division of the International Machine Tool Corporation, Elkhart, Indiana.

The general purpose superfinishing machines are capable of developing an extremely accurate and fine finish of 2-5 micro-inches on cylindrical work such as shafts used in aircraft engines, etc., where surface scratches and defects must be eliminated.

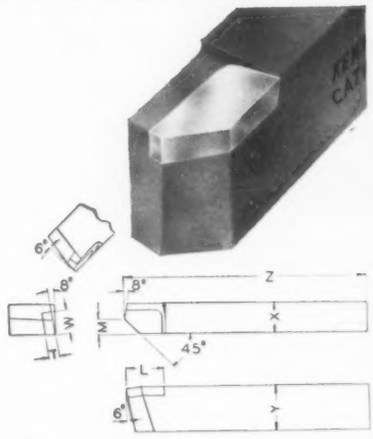
PAY ROLL CALCULATOR

■ Pay rolls and job costs can be figured in a fraction of the usual time through the use of a calculator, according to the manufacturers, the Berger-Bricker Company, Los Angeles, California.

Operating on a simple principle, this device includes all hourly rates of pay from $0.50 to $1.75 with a half-cent spread between rates. It covers all time periods up to 104 hours with divisions of one-tenth of an hour. It is handsomely made of lacquered wood and easily fits into a desk drawer.

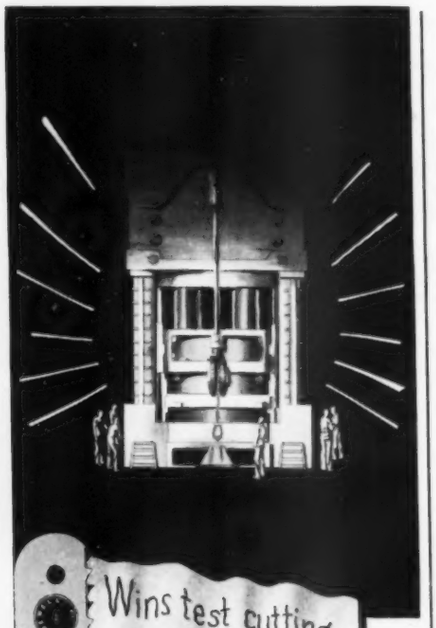
• IDEAS • Continued

STEEL-CUTTING CARBIDE TOOLS



■ The McKenna Metals Company, Latrobe, Pa., in answer to the demand for a steel-cutting carbide tool having a lead angle is announcing new Styles 39 and 40 Kennametal tools. Styles 39 and 40 tools combine the lead angle or side cutting edge angle with a tip for longer than

(Continued on page 174)



TECHNITE

Wins test cutting ARMOR PLATE

Cut Costs

This mid-Western ordnance steel concern, producing armor plate, put Capewell's TECHNITE hack saw blades to a thorough test. They acknowledged their approval with repeat business. Again Capewell cut costs. Capewell blades last longer, cut faster. Order from your mill supply man today.

CAPEWELL

THE TREND IS TO TECHNITE

THE MOLYBDENUM HIGH SPEED HACK SAW BLADE

Write for your copy

INFORMATION for Purchasing Agents on STAINLESS WELDING FITTINGS

Pittsburgh Piping Stainless Welding Elbows simplify piping fabrication and save valuable time. Made in 90° and 45° styles in Stainless Type Nos. 308, 316, 317, and 347. Sizes ¾" to 8". Bulletin S-306 describes the complete line.

Write for your copy.

PITTSBURGH PIPING & EQUIPMENT CO. 10 FORTY-THIRD ST., PITTSBURGH, PA.

Here—Millions of BOLTS-NUTS-SCREWS for Defense—

These are the products you can use on production job after production job with the assurance that General Screw Manufacturing Company products will help you standardize, with uniformity, for economy and speed in production.

GENERAL SCREW MANUFACTURING CO.

1234 W. MONROE ST. CHICAGO, ILL.

WeldELLS *have everything* ★

THOSE TANGENTS MEAN MORE THAN YOU MIGHT THINK

For a pipe welding job to be right, two things must be right—the fittings *and* the welding. In developing WeldELLS we have kept both of these points in mind. That's why you find in WeldELLS not only everything that can contribute to the soundness of the fitting itself, but also everything that will help the welder do a job *worthy* of the fitting.

Take the feature illustrated above—the tangents. These straight segments on each end of every WeldELL keep the weld out of the zone of greatest stress—conform to best engineering practice. But, equally important, they also make it easier for the welder to line up the job and weld it properly.

Check down the list of WeldELL features and you will find that WeldELLS give you the means of doing every job as *well* as it can be done—as *easily* as it can be done—and therefore as *economically* as it can be done!

No other fittings for pipe welding combine these features. In addition to tangents these features are:

- **Seamless** — greater strength and uniformity.
- **Precision quarter-marked ends**—simplify layout and help insure accuracy.
- **Selective reinforcement**—provides uniform strength.
- **Permanent and complete identification marking**—saves time and eliminates errors in shop and field.
- **Wall thickness never less than specification minimum**—assures full strength and long life.
- **Machine tool beveled ends**—provide best welding surface and accurate bevel and land.
- **The most complete line of Welding Fittings and Forged Steel Flanges in the World**—insures complete service and undivided responsibility.

TAYLOR FORGE PRODUCTS
all vital to modern warfare

WeldELLS are just one of the many Taylor Forge Products that are vital to war and to every branch of war industry. For example: Huge Rolled Steel Rings that are an important part of American tanks now in action.

TAYLOR FORGE & PIPE WORKS
General Offices & Works: Chicago, P. O. Box 485

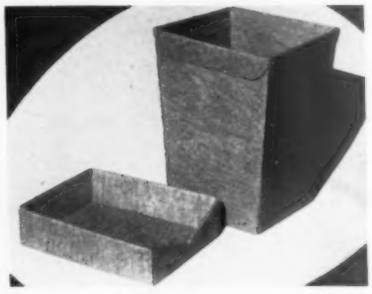
NEW YORK OFFICE: 50 CHURCH STREET • PHILADELPHIA OFFICE: BROAD STREET STATION BUILDING

(Continued from page 172)

customary on carbide tools having a lead angle. Styles 39 (as pictured) and the opposite hand Style 40 (not pictured), will be considered as standard tools in the Kennametal line.

These tools are being widely used in shell turning where uniform forgings permit the depth of cut never to exceed the length of the tip having a lead angle. The chip breaker is ground only on the section parallel to this lead angle. These tools are available in sizes ½" x ½" x 3½" to 1½" x 2" x 14".

CORRUGATED BASKETS AND TRAYS



■ Office supply dealers looking for merchandise to bolster their diminishing lines, as well as purchasing agents experiencing difficulty in obtaining minor "accesories of production" will welcome

(Continued on page 176)

Files that last longer

This is the report by users of "American Swiss" Swiss-Pattern Files who have compared these precision files to others.

The reasons . . . specially high grade metal (file steel, not tool steel), accurately controlled and uniform hardening, deep sharp cutting edges, and more filing surface than in most Swiss-Pattern files made in U. S. A.

Over 3000 different shapes, cuts and sizes provide the right selection for every precision or intricate filing job.

Buy from our distributor

American Swiss File & Tool Co.
Elizabeth, New Jersey

ONLY THE BEST

AMERICAN SWISS

FILES OF PRECISION

PATCH FLOORS
. . . While Traffic Rolls

Roll a drum of INSTANT-USE over to the hole in the floor—remove the lid—shovel out enough to fill the hole—tamp smooth—and open the spot to regular traffic immediately, without waiting. You'll have a tough, solid, permanent patch that formerly took 24 hours to get. This rugged, new plastic bonds tight to old concrete, withstands extreme loads. Keep a drum on hand. Immediate shipment.

REQUEST DESCRIPTIVE FOLDER

. . . and Details of FREE TRIAL OFFER

INSTANT-USE
FLEXROCK CO. 2319 Manning St., Phila., Pa.

Mass Production of Hose Clamps *Speeded With*

WITTEK *Automatic* ROLL FEEDS
FOR PUNCH PRESSES

Wittek Automatic Roll Feeds and Reel Stands are designed to fit all makes and sizes of punch presses and made in various types for every requirement in the automatic feeding of coiled strip stock.

In the all-out war production of Wittek Hose Clamps for aircraft, tanks, jeeps, trucks, and engines, the making of stampings from coiled strip stock is a major operation. To attain this mass production schedule, speed, accuracy and efficiency in feeding the metal to punch presses were essential. Wittek pioneered and developed the Wittek Automatic Roll Feed for that purpose. It has been proven on Wittek's and many other production lines, as the most important contributing factor for maintaining those present high production levels. Wittek Automatic Roll Feeds and Reel Stands are made available to other manufacturers who fabricate parts from coiled stock and demand speed and efficiency in their punch press operation. Write for catalog, prices and specifications.

Wittek Hose Clamps, for over twenty years identified with the Automotive and Aviation industries, are noted for their permanent leakproof hose connections. For original equipment and replacement.

WITTEK MANUFACTURING CO.
4305-15 W. 24th Pl., Chicago

Cleveland Quality ... Your Assurance of Strength and Accurate Fit in All Cap and Set Screws and Special Upset Parts

SPECIALIZATION in the upset process here at "Cleveland" has brought profitable advantages to users searching for high standards in fasteners. You can get all types of bright full finished, 1035 heat treated and alloy cap screws, and properly case hardened set screws from "Cleveland"—all made by the newest refinements in Kaufman Process procedure. Special upset parts to your specifications. Most sizes of standard items carried in stock at our convenient warehouses. Write for samples and prices.

THE CLEVELAND CAP SCREW COMPANY
2917 East 79th Street • Cleveland, Ohio

1035 and Alloy Heat Treated Cap Screws
Set Screws—All types
Milled Studs—Standard or Special Threads
Special Upset Parts

Cleveland Cap Screws

Set Screws and Special Upset Parts

Made by the Originators of the Kaufman Process for Greater Strength and Accuracy

Specialists for 26 years in Headed and Threaded Products

WAREHOUSES
CHICAGO: 726 W. Washington Blvd. . **HAY**market **1392**
PHILADELPHIA: 12th & Olive Sts. . **POP**lar **7530**
NEW YORK: 47 Murray St. . . . . **BARC**lay **7-5088**
LOS ANGELES: 1015 E. 16th St. . . **PROS**pect **8326**

When writing The Cleveland Cap Screw Company please mention Purchasing

Here's one Answer to the

HELP WANTED Problem

Use **LONGER-LASTING**

CAR-NA-VAR
REGD. TRADE MARK U.S. PAT. OFF.
THE PERFECT FLOOR TREATMENT

CAR-NA-LAC
LACQUER-LIKE FLOOR FINISH

CAR-NA-SEAL
WEARS LIKE LEATHER

ON YOUR FLOORS!

Don't let your floors take a beating for lack of maintenance man-power. With longer-lasting Car-Na-Var treatments, a bare skeleton crew can keep them in tip-top shape . . . yes, better than ever before.

True, Car-Na-Var products cost a little more per gallon. But being longer-lasting, one man can do the job that may take two, three or as many as four men with ordinary floor waxes. You save vital labor . . . and in the long run actually cut material costs as well. Ask us to prove it with a free demonstration.

FREE BOOK

A handy reference book for the maintenance man, giving the step-by-step treatment for every type of floor. Write for a copy today...no obligation.

CONTINENTAL CAR-NA-VAR CORP.
1421 E. NATIONAL AVE. BRAZIL, IND.
Specialists in Heavy Duty Floor Treatments

(Continued from page 174)

the attractive new corrugated waste baskets and desk trays being produced by The Hinde & Dauch Paper Company, Sandusky, Ohio.

Developed to fill a demand occasioned by metal shortages, the basket and desk tray are sturdy and rugged and similar in appearance to their pre-war predecessors. The waste basket has a wood grain finish. The desk tray is available in both walnut and birch finishes.

LENS PENCIL

■ To help keep safety goggle lenses from fogging, American Optical Company of Southbridge, Mass., announces an anti-fog lens pencil.

The compound, according to laboratory tests, secures superior anti-fogging results for a longer period of time than former

(Continued on page 178)

"DANDUX" SPELLS QUALITY CANVAS GOODS

The use of "Dandux" by leading railroads, industrial and marine organizations attest the greater value, economy and precision craftsmanship of "Dandux" Canvas Products.

Their *extra* margin of service — is your guarantee of canvas value supremacy. Send for free descriptive folder No. P.-2 and full information on your requirements, today.

C. R. DANIELS, INC.
Manufacturers of Everything Canvas
44 WEST ST., NEW YORK, N. Y.
Newark • Boston • Buffalo • Chicago
Cleveland • Detroit • Milwaukee
Philadelphia • Pittsburgh • Alberton, Md.

Get Both!

1: a BETTER SHOVEL

2: and BETTER WAYS TO USE IT

New manual clearly pictures how men can dig and move material faster and easier — save time, money, man-power. Order copies free, for distribution and posting in plants.

THE UNION FORK & HOE COMPANY
594 Dublin Avenue
Columbus, Ohio

RAZOR-BACK
Only Shovel with a BACKBONE

Plant Maintenance is Important for War-Time Production

Washrooms, floors, walls, painted or varnished wood work etc., get dirty and grimy from constant usage, and are hard to clean unless the right Compounds are applied.

So hundreds of plants use —

PERMAG
Cleaning Compounds

for maintaining clean sanitary conditions.

PERMAG works fast, economically wherever used. On tile, marble, concrete, painted surfaces — all types of flooring — PERMAG rinses freely leaving the surface free of film and non-slipping.

Our field representative will be glad to aid you with any cleaning problem.

Write us for details.

MAGNUSON
PRODUCTS CORPORATION

Mfrs. of Specialized Scientific Cleaning Compounds for Industries
Main Office: 50 Court St., Brooklyn, N. Y. Representatives also. Warehouses in principal cities. In Canada: Canadian Permag Products Ltd., Montreal, Toronto.

The Answer to a Foreman's Prayer

This is a valve part . . . used in aircraft instruments. The foreman in charge of its production had a fairly happy lot—until nickel hit the "critical" list

This particular piece was made of alloy steel, rich in nickel. Came a recent day, however, when the specified steel became as scarce as coffee. It looked like production quotas were due to start skidding.

Putting the problem up to Frasse, the foreman substituted, as per recommendation, a more plentiful low-nickel emergency steel —NE 8620. The only wrinkles—slight changes in machining and tempering—were quickly ironed out, leaving hardly a ripple in the production schedule. Trouble hasn't reared its head since.

Frasse technical representatives have been gathering such operating data on the new emergency steels for months. If you are still in the contemplating stage, or have struck a "bug" in changing over, Frasse engineers will be glad to pitch in. Their advice is gratis. Just write or call: *Peter A. Frasse and Co., Inc., Grand Street at Sixth Avenue, New York, N. Y. (Walker 5-2200) • 3911 Wissahickon Avenue, Philadelphia, Pa. (Radcliff 7100 — Park 5541) • 50 Exchange Street, Buffalo, N. Y. (Washington 2000) • Jersey City, New Jersey • Hartford, Connecticut • Rochester, New York • Syracuse, New York.*

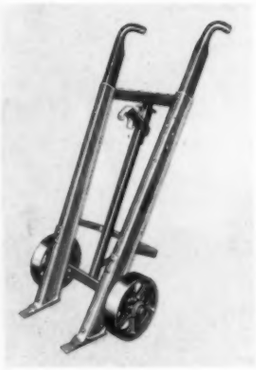
SEAMLESS MECHANICAL AND AIRCRAFT TUBING
COLD FINISHED BARS · ALLOY STEELS · DRILL ROD
STAINLESS STEELS AND TUBING · AIRCRAFT STEELS
COLD ROLLED STRIP AND SHEETS · WELDED STEEL TUBING

Frasse
Mechanical and Aircraft STEELS

(Continued from page 176)

types, and thereby adds to the efficiency of men working in steamy surroundings.

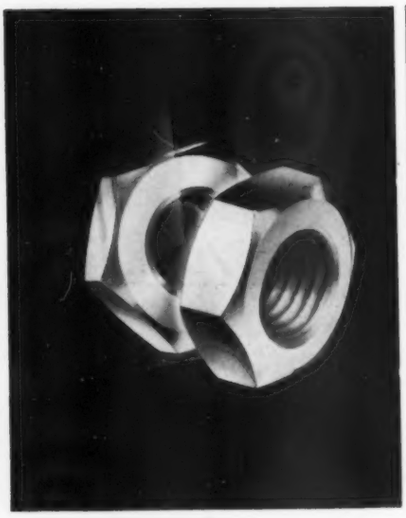
DRUM-LOADING TRUCK



■ The Upsy truck, manufactured by American Pulley Company of Philadelphia, Pa., is a standout for safe, easy and quick handling of drums, barrels, kegs—any container having a chime or bead. Handling up to a thousand pounds, it makes barrel or drum moving a one-man job, and loads a drum without the need of first moving it away from adjacent drums.

A sliding hook on the truck's center rail catches the top bead or chime of drum or barrel. Trucker pulls down on

(Continued on page 180)



IT PAYS TO USE THESE "Double Chamfered" Nuts *by* Central!

★ No "try — turnover — and try again" when assembling war products with Double Chamfered Nuts by Central.

Both Sides Are "Tops" . . .

Both sides being identical — there's no fumbling. Assembly line workers pick them up *right side up* every time for BIG SAVINGS on assembly costs.

Chamfering the Central way — in addition to embossing the metal to proper shape and thickness — increases its density and hardness, while the finished products are free from surface irregularities. Such nuts can be (and are) more accurately tapped with clean, sharp threads that provide maximum thread engagement. They start easy — spin on — STAY TIGHT.

Regular quantities of Double Chamfered Machine Screw Nuts carried in stock in steel and brass. Also available in other suitable metals.

Used to assemble Aviation Components — Marine Controls — Communications Devices and Components — Ordnance Products. Stocks Include Many A N Items.

Write for new circular "P" today.

CENTRAL SCREW COMPANY

3515 Shields Ave., Chicago, Ill.

A New High-Speed ROTARY PRODUCTIMETER *for the Production Front*

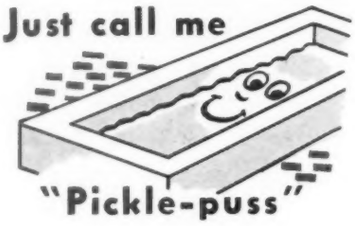
From its streamlined appearance to its rugged construction features, the new "HDW" (shown above) meets the ever-increasing demand for high-speed rotary counters, moderately priced. It is designed and built for heavy duty at speeds up to 2000 counts per minute...and is especially adapted for quick starting and stopping applications.

Double worm drive, oil-less bearings, light wt., strong plastic wheels, hardened steel parts... assure smooth action and dependable service.

Send for Bulletin No. 100 on Standard Productimeters.

Many types and models available for use in various industries.

DURANT MFG. CO.
1959 N. Buffum St., Milwaukee, Wis.
159 Eddy St., Providence, R. I.

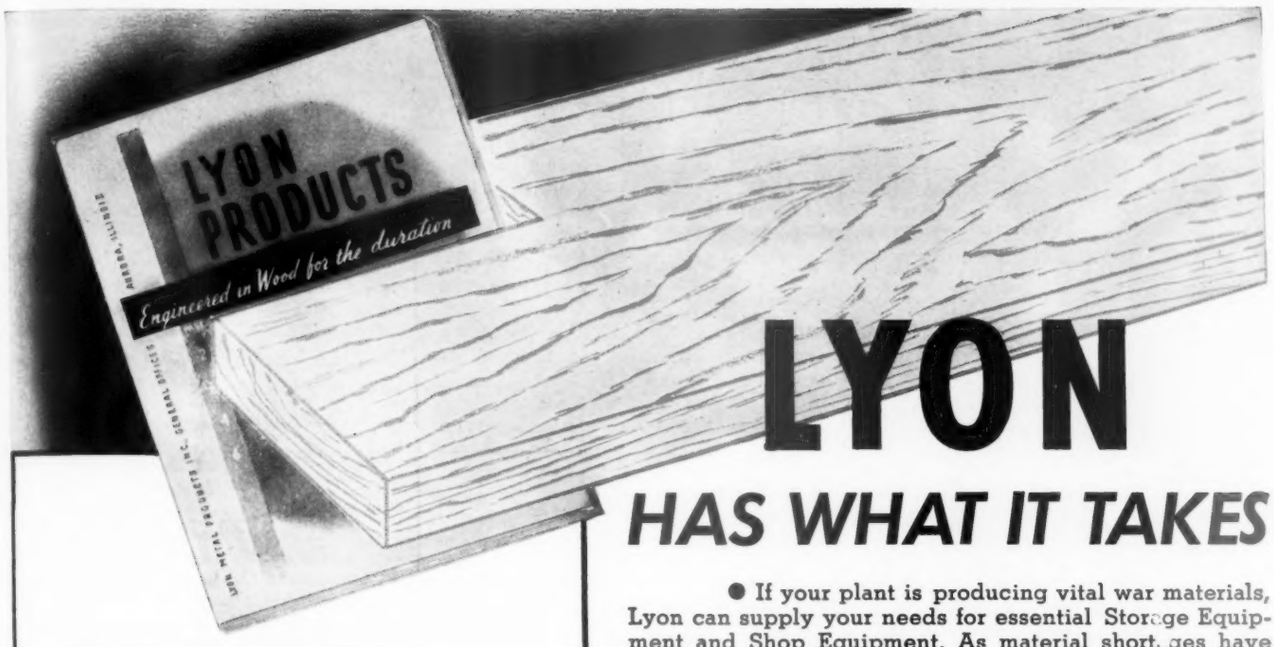


This tank has a tremendously important job—for, on proper pickling and cleaning of material for galvanizing depends the strength of the bond. And, one reason that Enterprise galvanizing measures to finest standards for quality is that we regularly test our pickling and acid solutions for contamination and acid strength—and we exercise extreme care on all orders, large or small, in control of this preparatory phase of the work.

ENTERPRISE GALVANIZING COMPANY

2519 E. Cumberland St., Philadelphia, Pa.

"To Economize — Galvanize at Enterprise!"



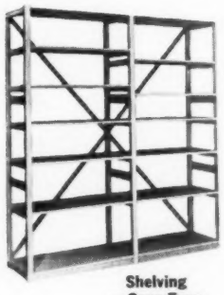
LYON
HAS WHAT IT TAKES

● If your plant is producing vital war materials, Lyon can supply your needs for essential Storage Equipment and Shop Equipment. As material shortages have stripped the market of steel storage units, Lyon Engineers have come through with practical substitutes . . . *engineered in wood.* Their design and construction reflects Lyon's half century of experience in engineering storage facilities for America's leading industries. Today, Lyon is producing wood Adjustable Shelving, Lockers, Cabinets and Shoprobes . . . offers the only *complete* line of wood equipment on the market.

Lyon Shop Equipment includes Benches and Accessories, Bench Legs, Tool Boxes, Tool Cases, etc.— every unit designed to help save the floor space, manhours and machine hours so vital to meeting or bettering "impossible" production schedules. Write or wire for full information.

LYON METAL PRODUCTS, INCORPORATED
General Offices: 3301 Madison Avenue, Aurora, Illinois
Branches and Distributors in All Principal Cities

Shelving —Closed Type


Shelving —Open Type

Single Tier Locker

Shoprobe
Pat. No. 2-202-427

Storage, Wardrobe and Combination Cabinets

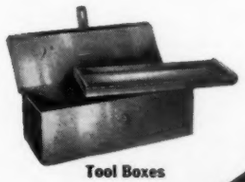
Double Tier Locker

LYON SHOP EQUIPMENT

3-Shift Work Bench

Tool Cases

Bench Legs


Tool Boxes

LYON
METAL PRODUCTS, INCORPORATED

When writing Lyon Metal Products please mention Purchasing

(Continued from page 178)

handles, tilting drum towards him. This allows nose prongs to slide under bottom bead of drum or barrel. Then, as truck handles are lowered to trucking position, the nose prong lifts the drum or barrel off the floor and the trucker is ready to "roll". Range of the adjustable hook is from 16" to 40"—even a small keg can be accommodated.

TRANSFORMER COOLING

■ Vitally needed increases in power transformer capacities can now be obtained quickly with a new system of forced-oil cooling that saves 25% in critical war materials on new transformers, the Allis-Chalmers Manufacturing Co., Milwaukee, Wis., has announced. The cooling unit, called the "Electro-Cooler," will step up capacity of transformers already in service by about 20 to 60%, the company reports.

The unit is compact, factory-assembled and factory-tested at high pressure. If the transformer has radiator valves, the unit can be removed without draining the transformer oil, and parts can be re-

(Continued on page 182)

Let UNUSED CAPACITY Join the War!

IF your men are working with ordinary files, "unused capacity" is slowing production! It has been accurately proved many times that Delta Files *accomplish on the average 25% or more work!* Enlist this unused capacity in the war effort. Give a Delta to your men and watch the long Delta chips speed production! Specify Delta Files to your mill supply salesman.

DELTA FILE WORKS
Philadelphia, Pa.

DELTA
DELTA FILES

How TO SAVE ON TOWELS!

Straubel TEXTURIZED Towels

Because one towel dries the hands thoroughly and does it quickly, you will find that Straubel Texturized Towels prevent waste and assure economy. They are pleasant to use, too, for they leave no lint on the skin. Write for free testing samples today!

Straubel
PAPER COMPANY
GREEN BAY, WISCONSIN

Get the Surer Hand Protection of

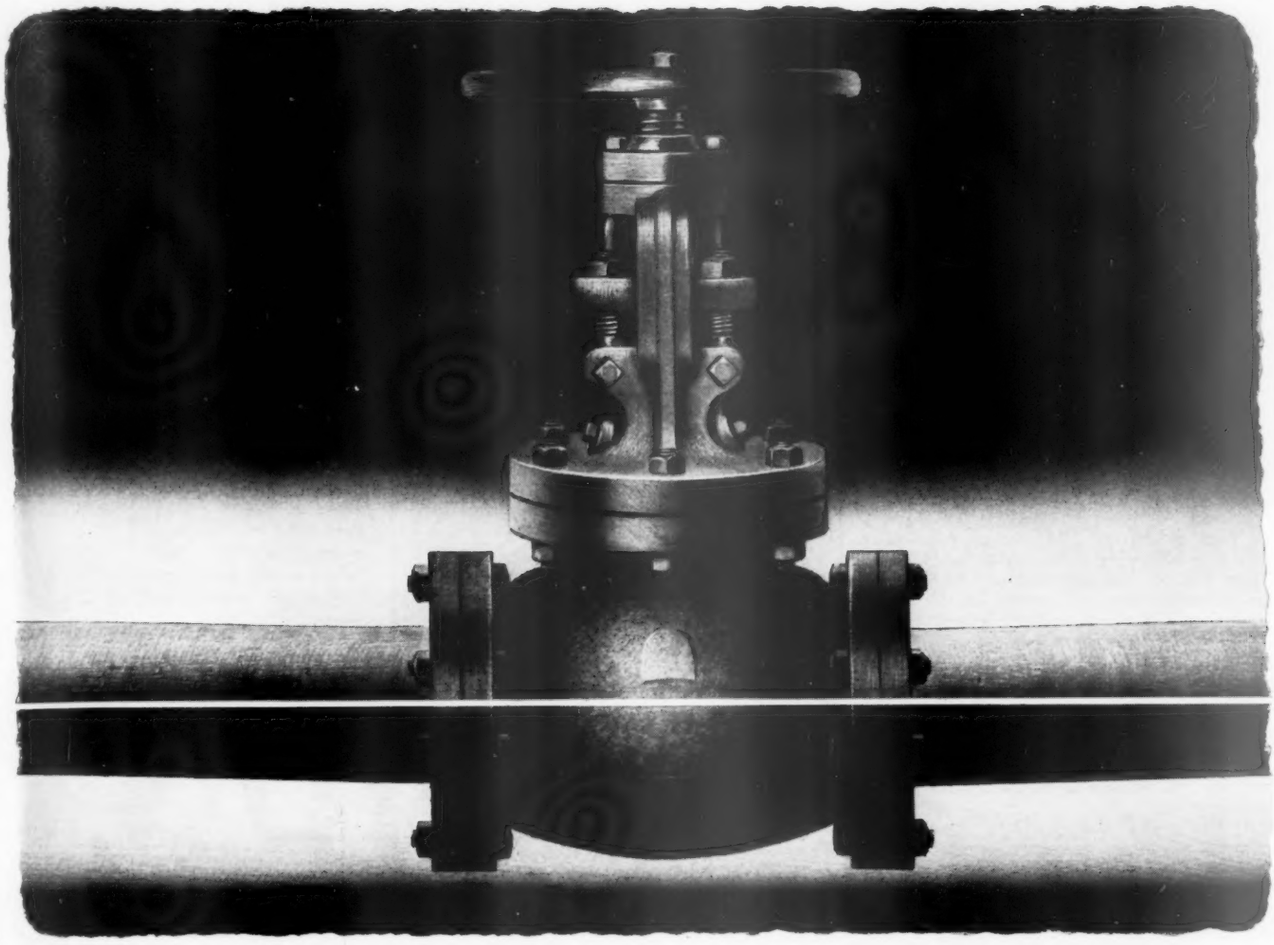
STANZOIL NEOPRENE GLOVES
and they actually cost you nothing

● One day's lost production from a pair of skilled hands in your plant far more than pays for a pair of Stanzoils—not to count doctor bills and liability claims. It pays you, *and it's important to the war,* to give men and women workers the better protection of Stanzoils of miracle neoprene that resists the attack of oils, acids, caustics, often lasting 3 to 7 times as long as ordinary gloves. Black or white, sizes and weights for all needs. Hundreds of industries now use them. Write for the whole story—and current delivery data.

Synthetic Rubber Division of
THE PIONEER RUBBER CO.
257 Tiffin Rd., Willard, O., U.S.A.
New York • Los Angeles

STANZOIL PIONEER
MADE WITH DU PONT NEOPRENE

DAYTON
GRINDING WHEELS
A complete line of abrasive wheels. Inquiries given prompt attention.
SIMONDS WORDEN WHITE CO.,
DAYTON, OHIO



GUARD YOUR VALVES GIVE THEM PROPER SUPPORT!

PROVIDE EXPANSION BENDS OR JOINTS

Don't so install valves that they carry the weight, sag or expansion of the line. Valves are not designed to carry that type of load. Distortion will result in inefficient operation, jamming, and need for early maintenance. Maintenance materials, you must remember, also are on the critical list.

It might be a good idea to approach inspection of every valve with one thought, *"What's wrong with this?"* Guard your valves. They will last longer.

Don't Use Gate Valves or Cocks for Throttling . . .

Gate Valves and Cocks should be opened wide and closed tight. When operated otherwise they are soon ruined, giving unsatisfactory service in the meantime. Use Globe and Angle Valves for throttling.

Write to Reading, Pa., general office, for copy of "VALVE DON'TS" —a poster for plant use that tells things NOT to do to valves.

READING-PRATT & CADY

MANUFACTURERS OF
READING CAST STEEL VALVES AND FITTINGS
PRATT & CADY BRASS AND IRON VALVES
D'ESTE VALVE AND ENGINEERING SPECIALTIES

Reading, Pa., Atlanta, Boston, Chicago, Houston, Los Angeles, New York, Philadelphia, Pittsburgh, San Francisco

A DIVISION OF AMERICAN CHAIN & CABLE COMPANY, Inc., BRIDGEPORT, CONNECTICUT

When writing Reading-Pratt & Cady please mention Purchasing

● They would say, "Mister, get busy and send this job to the new DoAll Saw Clinic. They will tell you the best saw to use for greater speed and a smoother finish. Your blading will last much longer and you'll save man hours and metal."

Example — An eastern manufacturer sent in the job above — parts to be cut from 5/32" steel. We recommended that they cut 13 parts at one time and use a 3/16" wide DoAll saw, 10 pitch, A temper, Raker set .042, Speed 160 f.p.m. with 25 lbs. pressure on straight cuts, 20 lbs. on contours.

THE FIRST AND ONLY SAW CLINIC OPEN TO INDUSTRY

On the staff are the best metallurgists and research engineers, thoroughly skilled in working with every kind of metal and alloy — magnesium, synthane, Masonite, plymetals, etc. The equipment of this modern laboratory includes one of the very latest Photomicroscopes. It shows the grain structure of any metal in minute detail.

Take advantage of this free service. Send us your actual material for a series of tests and receive a complete written report with our findings.

DoAll BAND SAWS

Come in Easy-to-Use **STRIP-OUT BOXES**

The finest blading made, with extra-hardened sawing edge. Each box contains 100 feet of band saw, which has passed triple inspection.

FREE SAW BOOK — Gives interesting case records and illustrations of difficult sawing jobs. Send for copy.

THE DOALL COMPANY
1214 Thacker St., Des Plaines, Ill.

(Continued from page 180)

placed without delay in transformer operation.

It consists of a radiator-type cooler and a special pump with motor enclosed. These are connected by piping to the standard radiator valves at the side of the transformer. No stuffing boxes are required in the special pump, and the motor is self-cooled and self-lubricated.

Because the unit is relatively small, usually more than one is required, depending upon size of the transformer.

TELL-BOARD BULLETIN CABINET

■ Tell-Board is the name of a new bulletin display cabinet developed by Mine Safety Appliances Co., Pittsburgh. It is illuminated by incandescent lamps mounted inside top of cabinet; has removable 24" x 27" posting board; removable glass sign with "Safety Bulletins" (No. CD-4227), or "General Bulletins" (No. CD-4228) in sandblasted letters, and overall size of 32" x 25" x 3½" with inside depth of 2". Built of solid white pine, Masonite, and glass. May be used in exposed locations.

PORTABLE COOLANT SYSTEM

■ A portable coolant system using a centrifugal pump, designed to deliver controlled coolant flow from 10 to 1,000 gallons per hour, has been announced by Gray-Mills Co., Chicago, Illinois.

This unit supplements two other model series in the company's line of portable coolant systems. Other models are gear pumps and deliver 50 to 165 gallons of coolant per hour.

It provides large coolant volume and high flushing capacity, making it particularly applicable for multiple spindle and

(Continued on page 184)

CHEESECLOTH
for Industrial
LABORATORIES

Burcott Cheesecloths are used in "labs" all over America for cleaning, wiping, straining, rubbing, polishing, and many other purposes. Here is quality cheesecloth that gives you the advantages of greater absorbency and absence of lint. Insure better results with Burcott Cheesecloths available in quantities and sizes to fit your individual needs.

UNBLEACHED CHEESECLOTH
MILL BLEACHED CHEESECLOTH
LAUNDRY BLEACHED CHEESECLOTH

Send for FREE samples—or, if you prefer, our agent will call.

BURCOTT MILLS
622-A-3 West Fulton Street
Chicago, Illinois

GET EXTRA PUNCH
OUT OF SKILLED HANDS!
Keep skilled hands flexible and productive with PAX Granulated Industrial Skin Cleanser. PAX will not "dry out" hands because . . .
1. pH below 10
2. NO Free Alkali
3. Low Alkaline Salts
PAX
PAX
2040 Walnut, Dept. P St. Louis, Mo.

and WIRE CLOTH PRODUCTS

3-in-1 Answer to Your Problem

Objective
- Uniform Workmanship
- Economical Production
- Deliveries on Schedule

for your wire cloth requirements

Solution
- Draw the Wire
- Weave the Cloth
- Fabricate the Product

in one continuous production line

Send Michigan Your Inquiries

ESTABLISHED 1860
MICHIGAN WIRE CLOTH COMPANY
2100 HOWARD • DETROIT

WIRE ... in its best Fighting Form!

IN thousands of varied shapes "fighting wire" is on the war fronts. In bombs and shells; in tanks and guns and planes; in equipment and war material of many types, you'll find wire-forms and springs doing a thousand-and-one vital jobs.

Above, you see a few of the many Accurate-made special wire shapes which are parts of fighting implements. They're produced in huge quantities to Accurate precision standards—under rigid control from raw materials to inspected finished products.

Accurate "know-how", based on experience and specialization, can help you solve your production problems that involve springs and wireforms. Tell us what you need and when you need it — it's as simple as that.

WHAT SPECIAL WIREFORMS DO YOU NEED?

Accurate Springs

Free "Handbook on Springs". Send for your copy today. It is informative, compact, handy to use.

ACCURATE SPRING MFG. CO., 3825 W. Lake St., Chicago, Ill.

When writing Accurate Spring Mfg. Co. please mention Purchasing

FOR BETTER CHAIN SERVICE
TAYLOR-MADE CHAINS

KNOW CRANE SIGNALS
AND USE THEM FOR—
— Protection of yourself and others
— Protection of loads and chains
Speed-up in Production

TRAVEL
Forearm vertical, hand open. Wave forearm in direction of travel.

HOIST
Forearm vertical. Make small horizontal circle with hand.

STOP
Arm extended, level with hip. Hold position rigidly.

EMERGENCY STOP
Arm extended, hand level with hip. Move hand quickly to right and left.

LOWER
Arm extended, hand below hip. Wave forearm downward.

RACK
Arm extended, hand just above hip, fingers closed, thumb extended horizontally. Jerk hand in direction of racking.

TAYLOR-MADE
FLASH-ALLOY STEEL
CHAINS
AND
SLINGS

Each link an absolute weld of *both* sides. Re-enforcing bulges inside *each* side of link. T-M Heat Treatment, T-M Design for longest most satisfactory performance. There's a T-M chain for every job. Write for complete catalog.

ESTABLISHED 1873

S. G. TAYLOR CHAIN CO.
BOX 509-P HAMMOND, INDIANA

(Continued from page 182)

deep drilling work, drill press installations, large cut-off machines, large grinders, large milling machines, large turret lathes, and as a stand-by unit for central systems.

SURFACE CONDITIONER

■ The Hanson-Van Winkle-Munning Company, Matawan, N. J., has developed a new type product called Surbrite, a steel surface conditioner.

It is a free-running powder prepared in two types for addition to hydrochloric acid and sulphuric acid pickles. Its use in small quantities as additions to regular acid pickles produces bright, smut-free surfaces when iron and steel are pickled.

It will reduce acid consumption and metal loss in comparison with pickling practice where plain acid is used.

SMALL AUXILIARY RELAY

■ A new instantaneous auxiliary relay, Type HMA, designed to meet the lightweight and small space specifications of Army, Navy, and Air Corps specifications, is announced by General Electric Co., Schenectady, N. Y. Weighs 9 ounces; size 1⅞ x 2¾ x 2 9/16" with cover. Base, cover and moving contact supports are of one piece molded Textolite. Available in following styles: double-pole, double-throw with single-break contacts; single-pole, double-throw with double-break contacts; single-pole and double-throw with double-break contacts brought out to a terminal. It can be obtained back or front connected; with or without cover.

PURCHASING AGENT—Desires to make a change. Now established in the Detroit, Michigan, area with ten years past experience as General Purchasing Agent. Capable of installing complete Purchasing Procedure. Available January 31, 1943. Write Box #942 PURCHASING, 205 East 42nd St., New York, N. Y.

ALLEN FLUX
Non Acid Soldering Flux
Offers a soder that
REQUIRES NO PRIORITY
FLOWS EASILY—ALLEN SILOY
Send for free samples
L. B. ALLEN CO., Inc.
6712 Bryn Mawr Ave., Chicago

WANTED: Experienced Marine Engineer and Electrical Engineer for supervisory position in West Coast Shipyard. Write Box #941, PURCHASING, 205 E. 42nd St., New York, N. Y.

WANTED: Experienced Estimator for ship repair and conversion work at West Coast Shipyard. Write Box #940, PURCHASING, 205 East 42nd St., New York, N. Y.

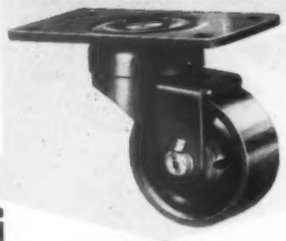
ARMSTRONG-BRAY
STEELGRIP
FLEXIBLE BELT LACING

Prompt Delivery!
—on both standard types of belt lacing.
STEELGRIP that is applied with a hammer that penetrates belting easily and clinches securely to make a strong, flexible, smooth joint. 2-piece hinged rocker pins take up wear. In boxes or long lengths for wide belts. It compresses belt ends and prevents fraying. 8 sizes.

WIREGRIP
BELT HOOKS
Applied with any standard make lacing machine, these belt hooks come on double (patented) aligning cards that hold hooks in perfect alignment and prevent card end waste. 6 sizes.

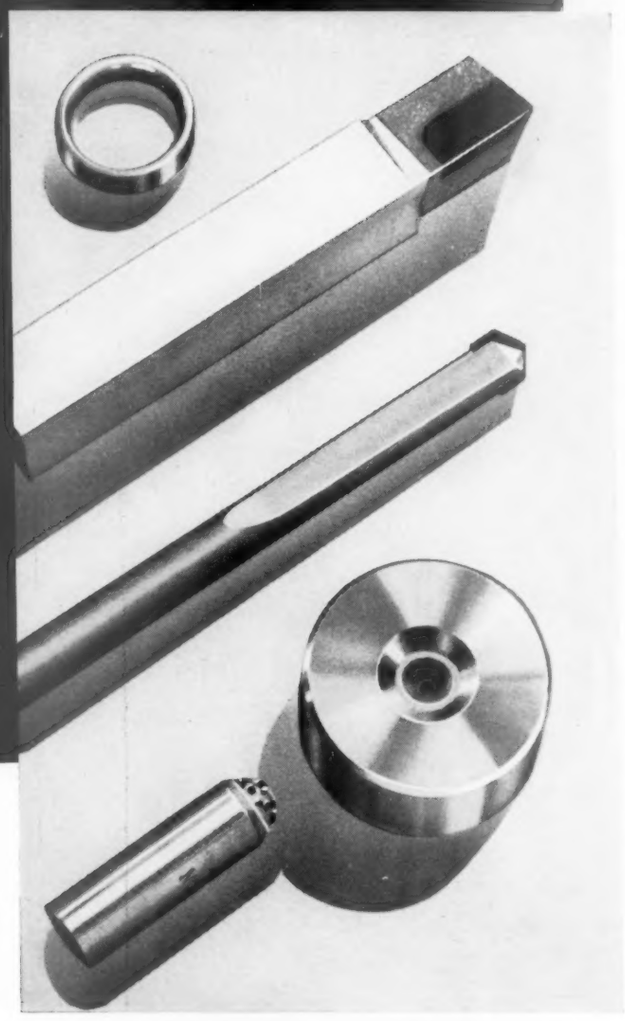
ARMSTRONG-BRAY & CO.
"The Belt Lacing People"
5378 Northwest Highway Chicago, U.S.A.

For Savings Specify



DARNELL CASTERS
For light or heavy duty service Darnell Casters and Wheels are made for a long life of trouble-free usage
DARNELL CORP. LTD.,
LONG BEACH, CALIFORNIA,
60 WALKER ST. NEW YORK, N.Y.
36 N. CLINTON, CHICAGO, ILL.

Use all 5 Ways to STEP UP War Production . . . With Carbides



1. Cut Metals Faster! . . . Carbide tools commonly double the volume of metal removed per hour. Cut wide range of material, from "tough" armor plate to "soft" plastics. Continuous or interrupted cuts. Adaptable to most old machines, as well as new. (Catalog GT-142.)

2. Dress Grinding Wheels Easier! . . . Diamond-Impregnated Carboloy dressers make diamonds do a full day's work every day! No time out for remounting. No lost diamonds. No "pampering" temperamental stones. Diamonds held permanently in place. Stocked in 3 sizes for wheels up to 42" diameter. (Catalog GT-142.)

3. Keep Machines Running! . . . Stop "shut-downs" caused by excessive wear on such parts as rollers, cams, guides, gages, valves, etc., used on your equipment. Just a small insert of carbide at the point of wear often increases life of parts up to 100 times longer. (Booklet WR-101.)

4. Draw Metals Better! . . . Draw, size, extrude your metals through carbide dies for better finish, greater accuracy, larger output, more continuous operation. Use for wire, bar, tubing, sheet metal. Outstanding for cartridge cases from .30 cal. through 105 mm. (Manual D-113.)

5. Install Equipment Quicker! . . . When installing new equipment, wiring and piping, or relocating present machines, carbide masonry drills drill holes 75% faster in concrete, brick, tile, porcelain, plaster. (Leaflet GT-103.)

CARBOLOY COMPANY, INC., 11191 E. 8 MILE BLVD., DETROIT, MICH.
(Sole makers of the Carboloy brand of cemented carbides)
Chicago • Cleveland • Los Angeles • Newark • Philadelphia • Pittsburgh • Seattle
Canadian Distributor: Canadian General Electric Co., Ltd., Toronto, Canada

CARBOLOY TRADEMARK **CEMENTED CARBIDES** TRADEMARK

TOOLS • DIES • DRESSERS • CORE BITS • MASONRY DRILLS • WEAR RESISTANT PARTS

When writing Carboloy Company, Inc. please mention Purchasing

WIRE

FOR

EVERY INDUSTRIAL USE

☆ Years of experience in producing for all types of industrial uses are behind every pound of Mid-States wire.

Mid-States makes wire of all types and gauges including bright basic, galvanized, annealed, copper coated, liquor finish, and box binding and stapling wire.

Wire users with AA ratings may find in Mid-States' engineering and production facilities the answers to many of their problems.

Sales and service offices are conveniently located throughout the country. Please address inquiries to the Home Office,

MID-STATES STEEL & WIRE CO.

CRAWFORDSVILLE, INDIANA

NEW YORK • MINNEAPOLIS • ST. LOUIS

ORLANDO

PAPER PARADE

(Continued from page 62)

Question: Can I buy Controlled Materials from the warehouse and, if so, how?

ANSWER: Just as you buy from a mill. Exceptions for limited quantities of Controlled Materials to be purchased without Allotment may be prescribed later by the Requirements Committee.

Question: Supposing I have a lot of small Allotments with a lot of different Claimant Agencies. Can I group them all together?

ANSWER: Yes, Sir. Provided none of the orders thus basketed (grouped, to you) calls for more than five tons of carbon steel or one ton of alloy steel or five hundred pounds of stainless steel or two hundred pounds of copper or one hundred pounds of aluminum. And provided further that you certify in your purchase order that you hold Allotments equal to the total and hang on to the Allotment certificates for two years to prove it. And provided finally that you give a statement of how much of the total Allotment of each Controlled Material derived from each Claimant Agency.

Question: Supposing the amount of Controlled Material that I need is less than a commercially procurable quantity. How do I get it?

ANSWER: You get the Prime or Secondary Consumer immediately above you to act as your purchasing agent.

Question: When does a contract schedule or production schedule become an "authorized" schedule?

(Continued on page 188)

Hammond
OF KALAMAZOO

NO DUST GRINDERS

Completely Self-contained Grinder and Dust Collector

PATENT PENDING

3 POPULAR SIZES

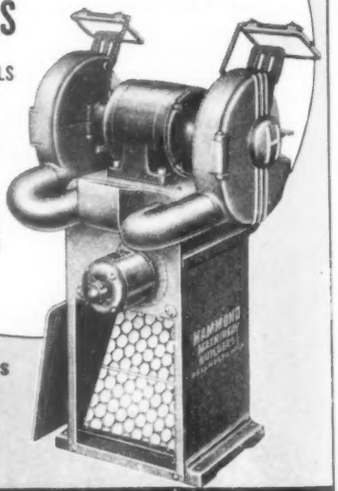
FOR 10" 12" 14" WHEELS

Save Space—requires only 6½ sq. ft. floor space

Save Time — set up near electric outlet, put it to work.

Save Man-hours—protect your employees' health.

WRITE FOR BULLETIN GP-13



OTHER HAMMOND PRODUCTS

CARBIDE, TOOL and SNAGGING GRINDERS • ABRASIVE BELT SURFACERS • AUTOMATIC and OD-CYLINDRICAL FINISHING MACHINES • POLISHING LATHES

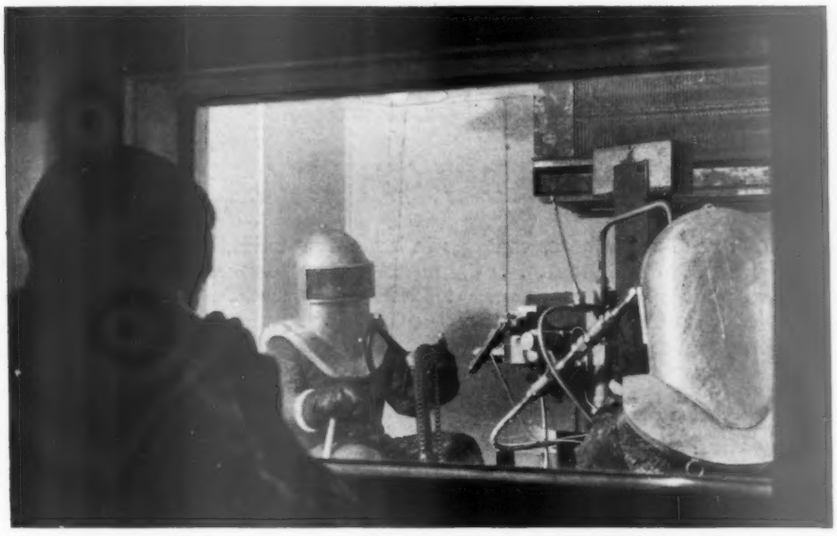
Hammond Machinery Builders INC.

★ ★ ★ 1633 DOUGLAS AVENUE ★ ★ ★

KALAMAZOO • MICHIGAN

EASTERN BRANCH 71 W. 23rd STREET, NEW YORK CITY

GLASS HELPS BRING THE STRATOSPHERE *Down to Earth!*



Six . . . seven . . . eight miles up. Up in the stratosphere. Soon our flyers and planes will be streaking through heights fit only for angels, before.

Because these heights do strange things to men and machines, industry is untiringly testing the performance of special motors, instruments and parts under actual stratospheric conditions. It is also seeking facts that will help medical science protect the men who rise to these rarefied heights where concentrated oxygen must be breathed and —100° cold combated.

Large testing chambers, like the one in the Douglas Aircraft Company plant, pictured above, bring the extreme temperature and atmospheric conditions of the stratosphere down to earth. These chambers are built with large glass windows so that work inside can be observed.

Because of the bitter cold inside, this would have been one of the most difficult windows in the world to glaze if it had not been for a remarkable Libbey·Owens·Ford glass development . . . Thermopane.

Thermopane might be likened to an air-conditioned glass sandwich. It is made of multiple panes of glass bonded together in one unit. The air space between each pane of glass is dehydrated and sealed. This unusual insulating window eliminates condensation between panes, even under conditions of extreme cold. No dirt nor dust can get inside the glass to impair vision. In short, Thermopane, for the first time, provides a glass window that insulates and affords the clearest vision at the same time.

Today, Thermopane is making an important contribution to the war effort. Tomorrow, this new glass unit, perfected by Libbey·Owens·Ford, promises to open the way to revolutionary benefits in the fields of clear-vision insulation and window conditioning for postwar construction.

Libbey·Owens·Ford glass research is multiplying the usefulness of flat glass, both for military and civilian needs. One of the many types of L·O·F flat, bent or tempered glass products may be the answer to your product problem. May we help you? Libbey·Owens·Ford Glass Company, 1343-A Nicholas Building, Toledo, Ohio.

L O F

LIBBEY·OWENS·FORD

QUALITY *Flat Glass* PRODUCTS

When writing Libbey-Owens-Ford Glass Company please mention Purchasing

ANSWER: When the Claimant Agency shows its approval by assigning Allotment Number and authorization to purchase Controlled Materials.

Question: Are Claimant Agencies the only ones who can "authorize" schedules?

ANSWER: No. Industry Divisions can authorize B products schedules and Prime and Secondary Consumers can authorize schedules for Secondary Class A Consumers directly under them.

Question: What is the sense of our collecting requirements on Non-Controlled Materials?

ANSWER: To be sure there are enough of the Non-Controlled Materials to go around. If not, they will soon become Controlled Materials.

(Editor's Note: The second and concluding installment of "Paper Parade" will appear in the February issue. It will cover the actual operation of the Controlled Materials Plan, step by step, with suggestions on how to make it work most effectively.)

WINGS OVER PURCHASING

(Continued from page 67)

but may have strong competition as a wider range of transport facilities is offered to industry. With the airplane skimming the cream off the transportation business—taking the higher paid, more important hauling jobs—substantial drops may come in the earnings of the older carriers. To business there will emerge an

(Continued on page 190)

Small Brass

CASTINGS

to your specifications

FAST DELIVERY . . . ANY QUANTITY

IF YOU need small brass castings in large quantities, thousands or millions . . . if you need them done *right* to your specifications and delivered *when* and *where* you want them . . . then wire Judd, phone Judd, or use the coupon below — for *it's a Judd job.*

Brass castings are only one of many Judd war products. All the Judd metalworking facilities that normally produce the world's finest and most complete line of drapery fixtures and housefurnishing hardware are now in war work. Small metal parts — military hardware — anything that's cast, spun, formed, stamped, threaded, tapped, riveted, plated, or almost anything else — is a Judd job.

Get details . . . use the coupon below. Or wire or phone our New York Office; ask for War Contracts Manager, at WOrth 2-3653.

DO YOU NEED PARTS LIKE THESE TYPICAL JUDD WAR PRODUCTS?

20 Mm. Rotating Bands; "D" Rings; Snaps; Loops; Slides; Buckles; Keepers; Hooks; Clips; Pull Rings (for Artillery Ammunition); Bolts and Nuts (for Small Arms Cases, etc.), Many Small Stamped Parts (replacing Forgings; have your Engineers check with Judd); Base Plugs (for 20 Mm. Shot)

JUDD

Military Hardware

Since 1870

War Contracts Manager, H. L. JUDD COMPANY
87 Chambers Street, New York City. P-1

Send me your War Contracts Bulletin.

Name.....

Address.....

ZAGAR INDEXING AND HOLDING FIXTURES

really

DO STUNTS ••• SAVE TIME AND MONEY

Get new, well illustrated bulletin; shows how to cut screw machine and other costs and jump production.

Above: Special Adaptation. Large bore enables 2" Zagar Indexing Fixture to hold heavy part for milling key slots. Screw replaces usual collet. Great accuracy, increased output.

At right: Zagar Holding Fixture holds hollow plug rigidly for drilling, cutting screw machine time 30%.

★ ★ ★

Get our new Bulletin P-1

ZAGAR TOOL, INC.
23880 Lakeland Blvd. Cleveland, Ohio

You can use them . . . to make your war packaging more efficient . . . to help reduce damage in transit and thus curtail waste of materials, manpower, machinery and transportation facilities.

"How To Pack War Materials" was "authored" by seventeen manufacturers who found the answers to their new packaging problems in the H & D Package Laboratory. From their experiences you will get ideas which can be readily incorporated in your own corrugated shipping boxes, to save you time and money all along the line.

Published by H & D as a contribution to more efficient, more effective shipping, this new addition to "The Little Packaging Library" is yours for the asking. Send for FREE copies today.

Protect the Product

BETTER SEE H&D AUTHORITY ON PACKAGING

PACKAGING "TEXT-BOOKLETS" FREE

A little time spent in taking H & D's complete "refresher course" in packaging will pay big dividends. Full of helpful information on every phase of distribution, you'll find it a valuable all-year reference. Just say you want a complete set of Little Packaging Library Booklets.

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FACTORIES in Baltimore • Boston • Buffalo • Chicago • Cleveland • Detroit • Gloucester, N. J. Hoboken • Kansas City • Lenoir, N. C. • Montreal • Richmond • St. Louis • Sandusky, Ohio • Toronto

When writing Hinde & Dauch please mention Purchasing

(Continued from page 188)

era of rapid transportation that will bring with it stupendous changes.

Manufacturing plants will have the whole world as their market in many lines. By the same token, Purchasing Agents will have the products of the wide world to select from and must broaden their knowledge of sources of supply. Stocks of lighter, valuable merchandise probably will no longer be carried by wholesalers. Since rapid shipments can be made from the factory, stocks carried at the factory may serve retailers. Manufacturing plants shipping chiefly by air will probably have to relocate in decentralized locations near an airfield, in many instances. Often such airfields will be privately owned by large industrial corporations.

Many such landing fields may become the centers of entirely new communities. Since the airplane requires no costly roads or tracks, industrial areas in hitherto inaccessible spots may be built. Other entirely new communities will spring up around the international airports of the future. Ice, mountains, deserts, seas are no barriers to a plane. Hence it is possible for it to take the great circle routes around the globe, shortening the distance between nations. On these great circle routes, at points near production, will be the international airports that will become the big shipping centers of the air age. A seaplane requires only a shallow lagoon for landing; a land plane, no water at all. Consequently, these international airports do not need the natural harbors that have heretofore determined the location

(Continued on page 192)

It's Easy—It's Quick

to set-up or re-arrange a shop with...

HALLOWELL SHOP EQUIPMENT

One advantage of choosing your work-benches from the 1367 ready-made "Hallowell" combinations is the ease in setting them up. They're constructed to stand firm and rigid without costly, time-taking bolting to the floor. This also makes it a simple matter to rearrange the shop if desired. Any number can be joined together to provide as long a continuous top as may be needed.

With the better-than-average deliveries of "Hallowell" Benches you save more precious time. The "Hallowell" Shop Equipment Catalog gives complete information. Send for a copy.

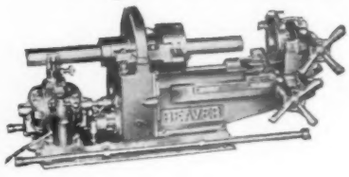
STANDARD PRESSED STEEL CO.

JENKINTOWN, PENNA. BOX 590

— BRANCHES —

BOSTON • DETROIT • INDIANAPOLIS • CHICAGO • ST. LOUIS • SAN FRANCISCO

The A-B-C of Pipe and Bolt Machines

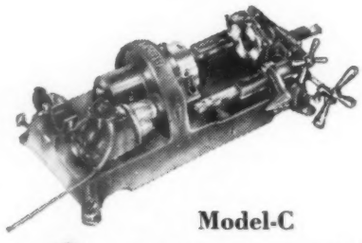


Model-A

A high-speed heavy-duty deluxe Pipe and Bolt Machine. Range ⅛ to 2-inch—up to 12-inch with geared tools and drive shaft. Bolts, ¼ to 2-inch. Wt. 415 lbs. Ask for Bulletin-A.

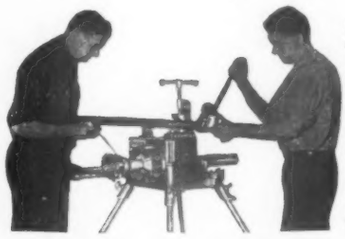
Model-B

A compact utility Pipe and Bolt Machine combining many features of Model-A with the easy portability of Model-C. Range ⅛ to 2-inch — up to 8-inch with drive shaft and geared tools. Bolts up to 1½-inch. Weight 280 lbs. Ask for Bulletin-B.



Model-C

A sturdy little Power Unit

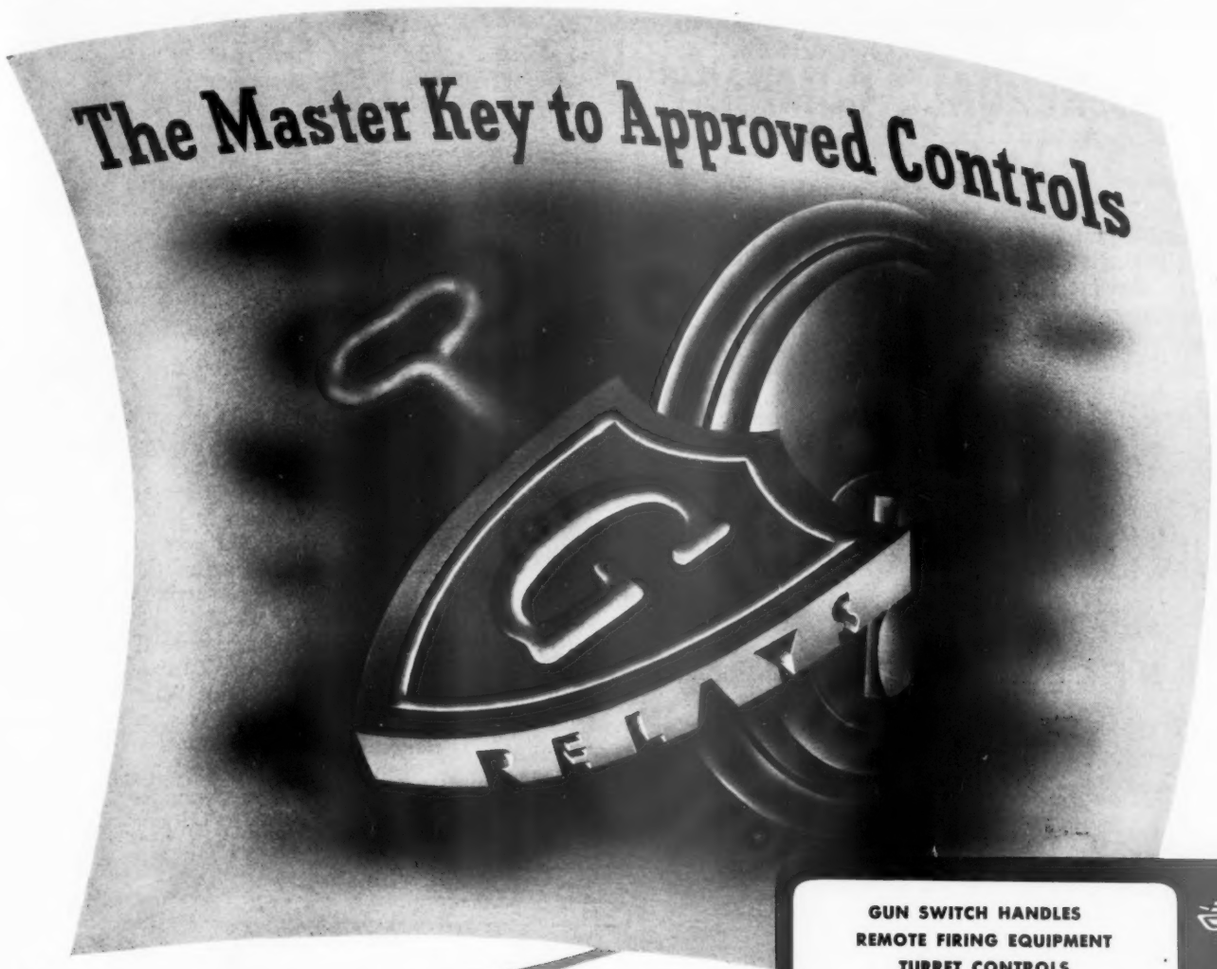


Converts Hand Pipe Tools into Power Tools from ⅛ to 8-inches. Threads 8-inch in 6 minutes. Threads bolts up to 1½-inch. Equipped with automatic chuck wrench ejector—a safety feature. Two men can use it at the same time without interference. Easily portable — weighs about 150 lbs. Write for Bulletin-C.

BEAVER PIPE TOOLS

143 GROW AVE., WARREN, O.

The Master Key to Approved Controls



GUN SWITCH HANDLES
REMOTE FIRING EQUIPMENT
TURRET CONTROLS
RADIO CONTROLS
NAVIGATION CONTROLS
AIRCRAFT CONTROLS
BOMB RELEASES
SOLENOID CONTACTORS

Samples of Approved Controls Available on Short Notice

America depends on RELAYS by Guardian

This "G" in the shield . . . high in the air—scouring the sea—sweeping the land . . . in jeeps—guns—tanks—planes—ships—is doing a 100% "all out" job for America! Strictly defense, production time open for government approved items, with samples immediately available for any job for the U. S. Army, Army Air Corps, Navy, Naval Air Corps, Marine Corps, Signal Corps, Ordnance.

WRITE—WIRE—PHONE

P. S. Want to take advantage of some of our recent developments for that "after it's over" product you have in mind? Samples only available now!

GUARDIAN ELECTRIC

1635 WEST WALNUT STREET CHICAGO, ILLINOIS

LARGEST LINE OF RELAYS SERVING AMERICAN DEFENSE INDUSTRY

When writing Guardian Electric please mention Purchasing

J. B. KENDALL COMPANY

Warehouses

Washington, D. C.
1510 Eckington Pl. N. E.
Division P.

Norfolk, Va.
122-124 W. Brambleton Av.
Division P.

BOLTS NUTS

BUILDERS HARDWARE

HEAVY HARDWARE

STEEL

Wire Rope

Tools

• • •

Immediate Shipment

• • •

Will ship anywhere

against

proper priority ratings

J. B. KENDALL COMPANY

Washington Phone
Michigan 6310

Norfolk Phone
Norfolk 5-1514

(Continued from page 190)

of ports. Quite conceivably, entirely new cities may spring up around such great airports.

In a social and economic revolution like that through which the world is now passing, to anticipate coming changes and their effect upon our businesses and our lives will be helpful in surviving the pace that follows victory.

* * *

A PURCHASE ORDER FOR HEALTH

(Continued from page 82)

to glass breakage is circumvented, quiet—a factor increasingly recognized as important for production—is maintained and hundreds are quickly served. Scientists recommend, for greatest efficiency among workers, provision of milk or fruit drinks which not only give energy but, by building powers of resistance, protect against diseases. That workers like their mid-morning "milk-cocktail" was demonstrated recently in a large Eastern airplane factory. Deprived of their customary morning milk, the men went on strike till the milk wagons were rolling again!

In huge or rapidly expanding plants these "moving restaurants" are also widely used to serve workers with regular meals. Hearty main dishes like stews, baked beans, chili con carne, with salads for essential vitamins and minerals, are served with a minimum of time, investment in equipment and effort, in paper cups and containers. A manager of a huge airplane plant estimates that, by thus serving 12,000 workers at eight

(Continued on page 194)

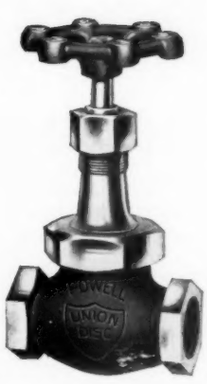
ORANGE CORE
Sealing Tape

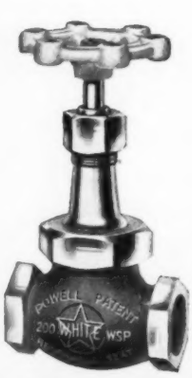
USE IT FOR SPEED!
USE IT FOR STAMINA!

Superior adhesiveness is one of the reasons why Orange Core is America's Most Popular Brand of sealing tape. It moistens quickly, sets speedily, sticks permanently. It hurries up shipping production and insures safer delivery. Yet you pay no extra premium in price for this superiority. Order Orange Core today from your paper merchant. Plain or printed, 8 different colors, all standard sizes.

MOORE & THOMPSON • Div. Hudson Pulp & Paper Corp. • 220 E. 42nd St., N.Y.C.

POWELL *has them all*



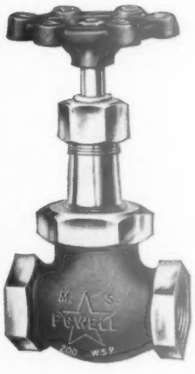


The history of the Powell Line is written in the amazing evolution of American Industry, because for nearly a century Powell has been meeting and satisfying every demand imposed by each new process or development in the industrial world.

Big valves, little valves . . . valves for high pressures, low pressures . . . for varying temperatures . . . for corrosion resistance. Globes, gates, checks, reliefs, non-returns, Ys, angles . . . in iron, steel, bronze, pure metals and special alloys—***Powell has them all.***

Shown here are a few examples of the many Powell Valves evolved by our Research Engineering Staff to meet some particular requirement. Having completely fulfilled it, they have taken their place in the Powell line.

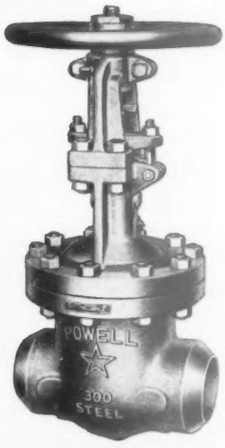
Today, for every known demand, Powell has the answer. And, as new problems arise in the future, Powell Engineering will be ready and able to solve them. In either case Powell Quality costs no more in the beginning and saves in the long run.



The Wm. Powell Co.

Dependable Valves since 1846

Cincinnati, Ohio



POWELL VALVES

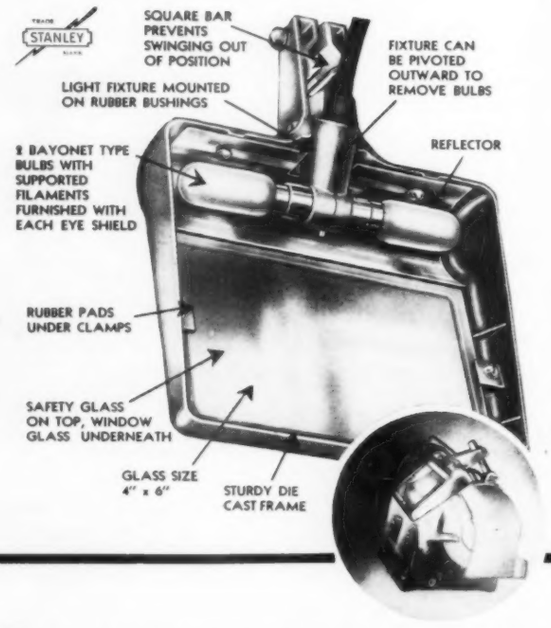
When writing The Wm. Powell Co. please mention Purchasing

Stanley "Flud-Lite" Safety Eye Shields

PROVIDE TWO-WAY PROTECTION

1. Sturdy Safety Glass protects eyes from particles thrown from the grinding wheel.

2. Abundant light, directed on the work, reduces possibility of hand injuries.


STANLEY
SQUARE BAR PREVENTS SWINGING OUT OF POSITION
FIXTURE CAN BE PIVOTED OUTWARD TO REMOVE BULBS
LIGHT FIXTURE MOUNTED ON RUBBER BUSHINGS
REFLECTOR
2 BAYONET TYPE BULBS WITH SUPPORTED FILAMENTS FURNISHED WITH EACH EYE SHIELD
RUBBER PADS UNDER CLAMPS
SAFETY GLASS ON TOP, WINDOW GLASS UNDERNEATH
GLASS SIZE 4" x 6"
STURDY DIE CAST FRAME

Stanley "FLUD-LITE" Eye Shields provide 30% more visibility than is possible without direct illumination. They are adjustable up and down, to suit the position of the operator. They cannot be moved to a non-guarding position without dismantling. Can be applied to all types of motor and belt driven grinders.

Lost man-hours today are a serious brake on war production. Prevent accidents at your grinders with Stanley "FLUD-LITE" Eye Shields. Your Stanley Distributor can supply them.

STANLEY ELECTRIC TOOL DIVISION, THE STANLEY WORKS
156 ELM STREET, NEW BRITAIN, CONNECTICUT

STANLEY ELECTRIC TOOLS

(Continued from page 192)

outdoor eating places, he saves 250 work days a year, in time otherwise consumed by workers walking long distances to eating places. In plant cafeterias paper cups and containers are used to speed service and to eliminate dishwashing—a factor of great significance now when skilled kitchen help is at a minimum and in the face of a recent War Production Board order halting manufacture of dishwashing machines, hot water heaters, wire racks and baskets and other dishwashing equipment. Thus the purchasing man who orders paper cups and containers made of non-critical material, is not only following the advice of health officials, united in their determination to have a free and continuing flow of paper cups to protect the public's health; he is also thereby helping to conserve such strategic materials as chlorine, oil, steel and copper.

To reap every possible advantage from his investment, one wide-awake purchasing man saw to it that workers in his plant knew that paper cups and containers were in use to protect the health of the workers. The employee was told that this service "is his alone"—a fact important to his health and aesthetically pleasing, too. Added dividends in employee goodwill resulted.

Truly the purchasing man of the day is in the vanguard of our fighting forces at home. He is battling to speed production with Yankee intelligence and ingenuity as his chief weapons. Cutting across traditional lines he is not only spurring his country's war effort but, by widespread adoption of such products as paper

(Continued on page 196)

Specify
TRI-LOK

OPEN STEEL FLOORING · SAFETY STEPS
CONCRETE ARMORING T. TRI-LOK

DRAVO CORPORATION
300 PENN AVENUE, PITTSBURGH, PA.
REPRESENTATIVES IN PRINCIPAL CITIES

Full descriptive catalog of Tri-lok Grating, Safety Treads and other products on request.

Waste Warden Tells HOW TO GET LONGER SERVICE

from your Welding and Cutting Apparatus

TORCHES

1. Blow out hose before attaching torch.
2. Be sure the torch seat is clean.
3. Be sure packing nut is tight.
4. Also—don't use torch as a hammer. A torch built to withstand such abuse would be too heavy to handle.

TIPS

1. Clean tips with proper size standard cleaning drills only. Be sure to use a drill one size smaller than the orifice about to be cleaned. Makeshift wire cleaners enlarge tip openings and upset flame balance.
2. Store all tips in racks to prevent damage. Tips battered at seating end waste gas.

REGULATORS

1. Keep regulator seat dust free. Before attaching regulator clean outlet by cracking cylinder; clean gland by a short blast from cylinder.
2. Release regulator adjusting screw when changing cylinders. This prevents high pressure shocks to regulator seat.
3. Always open cylinder valve slowly when installing regulator. Repeated sudden cracking of cylinder into regulator promotes leakage.

DON'T JUNK DAMAGED APPARATUS

Good maintenance practices will help you get longer service from your gas welding and cutting apparatus. But if a torch, tip, or regulator is damaged — send it to an Airco Apparatus Repair Shop. This nation-wide repair service is available through your nearest Airco office.

If you want extra copies of this advertisement we will be glad to furnish reprints. Write to Air Reduction, Advertising Department, 60 East 42nd Street, New York.

AIR REDUCTION

60 EAST 42nd STREET, NEW YORK, N. Y.

IN TEXAS: MAGNOLIA-AIRCO GAS PRODUCTS COMPANY

AIRCO WILSON

IDLE CYLINDERS ARE PRODUCTION SLACKERS: *Keep 'em rolling for victory!*

When writing Air Reduction please mention Purchasing

PAGE for Wire

Yes It's **"PAGE FOR WIRE"** for America at war—just as it will again be **"PAGE FOR WIRE"** for peace-time production.

Currently **PAGE** mills are at capacity for the needs of the armed forces—and for industries on war production.

HOW ABOUT PEACE?

How about peace? **PAGE** considers that, too—but no wishful thinking is permitted to interfere with the one job today; which is to win this war.

In war and peace, wire is the business of **PAGE**.

General Wire	Spring wire, Bond wire, Telephone wire, etc.
Shaped Wire	Half-round, triangle, hexagon, octagon, keystone, channel, etc., in diameters up to 3/8", end section areas to .250 sq. inches.
Stainless Steel Wire	Shaped as above and round.
Welding Wire	*Stainless Steel* in a range of analyses and diameters from which it is easy to choose the electrode of correct size and that will provide a deposit equal to the Stainless being welded. Also electrodes for welding all other steels—all electrodes being handled by local **PAGE** Distributors.

TODAY steel for any purpose is hard to get. And mills are jammed. So we continue to suggest buying wire carefully and using it carefully. If under these all-out war conditions you are planning things that must wait for production on peace, you will find us more than able and willing to help work with you on any of the jobs that call for the use of wire.

PAGE WIRE

PAGE STEEL AND WIRE DIVISION
Monessen, Pa., Atlanta, Chicago, New York, Pittsburgh, San Francisco

In Business for Your Safety

ACCO

AMERICAN CHAIN & CABLE COMPANY, Inc.
BRIDGEPORT • CONNECTICUT

(Continued from page 194)

cups and containers, he is laying a pattern for future industrial efficiency. In his decision to use such products lies a broadened conception, not to be cast aside when war is ended, of his job; a realization that maintenance of the health of America's manpower is a responsibility, within his province, or a significance even greater than the installation of the most shiny, up-to-date machine!

★ ★ ★

INVENTORY CONTROL

(Continued from page 88)

If we end the war with reasonable inventories it will enable the country to swing back more quickly to peace time living. It is not expected any inventory control plan will eliminate inventory losses when the war ends, but it should help to keep those losses at a minimum. Finally, when the country is past the period of adjustment then reasonable and well thought out inventory policies can help smooth out the inevitable peaks and valleys that characterize the business cycle.

Inventory policies must be adjusted to the times, and though the period of transition will present the most difficult problems, there will be a continuing need for careful inventory control.

The Purchasing Agent has always been an important factor in the establishment of inventory policies and for that reason he must assume a large share of the responsibility for its operation.

(Continued on page 198)

For Centuries . . . BRASS *was "Coin of the Realm" . . . and* BRISTOL *still treats it that way*

FOR nearly two hundred years, the ancient emperors from Augustus to Hadrian imprinted their profiles on memorial coinage of lasting brass. Through centuries of burial since then, these coins have preserved their metallurgical integrity . . . as well as the identity of those who had them struck off.

And for nearly a century at Bristol, brass has been made with care and precision as watchfully maintained as though the metal were to be minted for current use. In fact, today, brass stands highest on the scale of the metallic currency used in warfare . . . shells, cartridges, and other material . . . which must outbid the Axis for victory on every fighting front.

So Bristol is rolling out better brass *and more of it* than ever, to meet the vital fabricating needs that only brass *can* meet . . . in war-production plants supplying the fighting forces of all the United Nations.

BRISTOL BRASS

THE BRISTOL BRASS CORPORATION
BRISTOL, CONNECTICUT
Makers of Brass Since 1850

★ BUY WAR BONDS TO BUY BULLETS ★

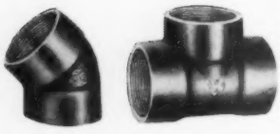
When writing The Bristol Brass Corporation please mention Purchasing

DEPEND ON THIS

Double Diamond

W S

When you see it on Fittings



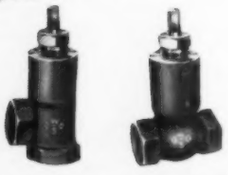
WHEN you use Watson-Stillman high-pressure, high-temperature Forged Steel Fittings for *all* of your needs, you can save yourself trouble *now* and save yourself money *in years to come.* The extra endurance of these Forged Steel "heavy weights" outweighs their cost. That's true economy, true conservation this year and any year.

The Watson-Stillman line includes screwed fittings and socket welding fittings, designed with more than ample metal sections and built with uniform wall thickness.

90 degree elbows, tees, 45 degree elbows, crosses, street elbows, laterals and crosses are forged solid from steel billets. Couplings, reducers, bushings, caps and plugs are machined from solid bars.

Bulletin A-3 lists all available Watson-Stillman fittings.

When you see it on Valves



THE double diamond W-S trademark on a valve assures you of the same heavy-duty sturdiness that it stands for when you see it on a fitting.

Watson-Stillman makes bronze and forged steel globe, angle and check valves for high-pressure, high-temperature service, therefore giving you a margin of safety on lower pressures.

New valves have been added to make the line of greater use. Like Watson-Stillman fittings, these valves are available through mill supply distributors.

Bulletin A-4 describes and illustrates these valves.

FREE *Just write us on your business letterhead and ask for Bulletin A-3 on Fittings and Bulletin A-4 on Valves.*

WATSON-STILLMAN

Engineers and Manufacturers of Forged Steel Valves and Fittings, Hydraulic Machinery and Equipment—Hydraulic Presses, Pumps and Jacks

The Watson-Stillman Co.
Roselle, N. J.

3133

(Continued from page 196)

Current statistics show the Purchasing Agent has already geared his actions to wartime needs. By the same token he can be expected to retain and use many of the lessons when peace is once more with us.

* * *

WHAT BUSINESS MAY EXPECT IN 1943

(Continued from page 65)

placed in two new selective service classes—2-C for those without dependents, and 3-C for those with dependents. If a deferred farm worker seeks to move from his "necessary" farm to a job in industry or a "non-necessary" farm or elsewhere, he must first obtain the permission of his local board. Otherwise, immediate reclassification will be made to those who leave, making them available for necessary farm jobs or immediate military service. The directive applies to those with dependents as well as to single men.

Second, the Office of Economic Stabilization recently removed all restrictions on wage increases for farm hands receiving less than $200 per month. This gives to agricultural labor a preferred status held by no other wage or salaried group. The order also prohibits farmers from cutting wages below the highest rate paid between January 8th and September 15th of 1942. While this order may improve the farm labor situation, it brings up a number of fundamental questions. For instance, will other groups now be classified as substandard, and will blanket wage increases be given?

(Continued on page 200)

RED GIANT *Liftrucks*

TO SPEED WAR PRODUCTION IN YOUR PLANT

May be Operated by Women

Speed up the handling of your raw materials and finished products by installing RED GIANT LIFTRUCKS and REVOLVATOR ELEVATORS for your heavy lifting, piling, tiering and stacking. There's a size and type of each to meet your specific needs. Save time; save space; save labor; save money.

Send TODAY for Bulletin—PUR

REVOLVATOR CO.

DESIGNERS AND MANUFACTURERS OF MATERIAL HANDLING EQUIPMENT

352 86th St. NORTH BERGEN, N. J. Since 1904

"Take the contract and *Start Work Now* . . . we'll locate enough special-diameter drills to get you started tomorrow morning"

One of America's prominent Manufacturers recently was able to start work immediately on a heavy Emergency Contract because he had a Mill Supply Distributor who specialized in helping customers to break down emergencies.

Specifications called for holes of "out" diameter and only special drills could produce them—drills that no manufacturer could deliver within weeks.

Working with the Purchasing Department, the Distributor finally reported: "take the contract and line up production as fast as you can. I know where these millimeter drills can be had—*plenty of them* to keep you going until the factory itself can fill your order."

The contractor filled the War job on schedule—thanks to the Distributor who knew his way around and had made *his* organization a helpful, friendly part of the *Manufacturer's.*

Think of *your* Distributor today as a trustworthy purchasing and expediting assistant, trained in emergency to contact many sources of supply and to locate *somewhere* the items you need, if they can be had at all.

Supply Houses of the highest type have served for years as Distributors of Cle-Forge High Speed Drills and Peerless High-Speed Reamers. Please accept our own confidence in them as ample reason for our commending them to you—for they are located all over America and have been our Representatives for many years.

This incident is typical of the unusual services that many Mill Supply Distributors are rendering their customers during the Emergency.

ARMY NAVY

Awarded May 22, 1942
Superseded July 13, 1942

The CLEVELAND TWIST DRILL COMPANY
1242 EAST 49TH STREET
CLEVELAND
TRADE MARK REG. U. S. PAT. OFF. AND FOREIGN COUNTRIES
30 BEADE ST. NEW YORK 9 NORTH JEFFERSON ST. CHICAGO 650 HOWARD ST. SAN FRANCISCO
6515 SECOND BLVD., DETROIT LONDON - E. P. BARRUS, LTD.- 35-36-37 UPPER THAMES ST., E.C.4

ARMY E NAVY

Awarded August 8, 1942
★

"CLEVELAND" DISTRIBUTORS EVERYWHERE ARE READY TO SERVE YOU

When writing The Cleveland Twist Drill Company please mention Purchasing

TISSUE TIPS by VICTORIA
MEN
UNFAIR
MEN
UNFAIR
MEN
UNFAIR
HE'S BEEN DOING THAT EVER SINCE THEY TOOK OUT THE VICTORIA!
Specify VICTORIA TOILET TISSUES
Single Fold, Double Fold or Black Core—for dependable quality.
Victoria Paper Mills Co., Fulton, N.Y. Craftsmen in paper-making since 1880.

(Continued from page 198)

Also, what will be the effect of increased production costs upon farm prices, and upon the cost of living for the country generally?

Will it be necessary to increase farm prices in order to absorb the increased production cost? This could easily be the first step in a complete revision of the entire price control program, a step which would be far-reaching in its economic consequences.

Commodity Price Trends

When making plans for 1943, take into consideration the following: (1) More drastic concentration of production in order to release materials, machinery, manpower, and transportation to the more essential war industries. (2) In the centralization of manpower control, the policy will be to proceed on a voluntary basis for some months to come, but more rigid rules and regulations will be in force by the summer of next year. (3) The movement of all materials necessary to reach our war production goals in 1943 will unquestionably tax our internal transportation facilities. Remember, the status of ocean shipping with the opening of the second front in Africa changed drastically over night. The shortage cannot be overcome for an indefinite period. The stage is about complete for the introduction of freight priorities.

During the calendar year 1942 the McGill Index of Commodity Prices averaged 97.1 as compared with 83.2 last year, or an increase of 17%. The fear of inflation subsided with the inauguration of the Emergency Price Control Act, but it is a foregone conclusion that in view of the loopholes which exist, particularly in

(Continued on page 202)

PROTECTION PLUS

Bullets for saboteurs . . . lagging for bumps and shocks . . . every possible protection is given this coastal defense gun from arsenal to emplacement.

Holding this lagging securely in place is a wartime job for Steel Strapping.

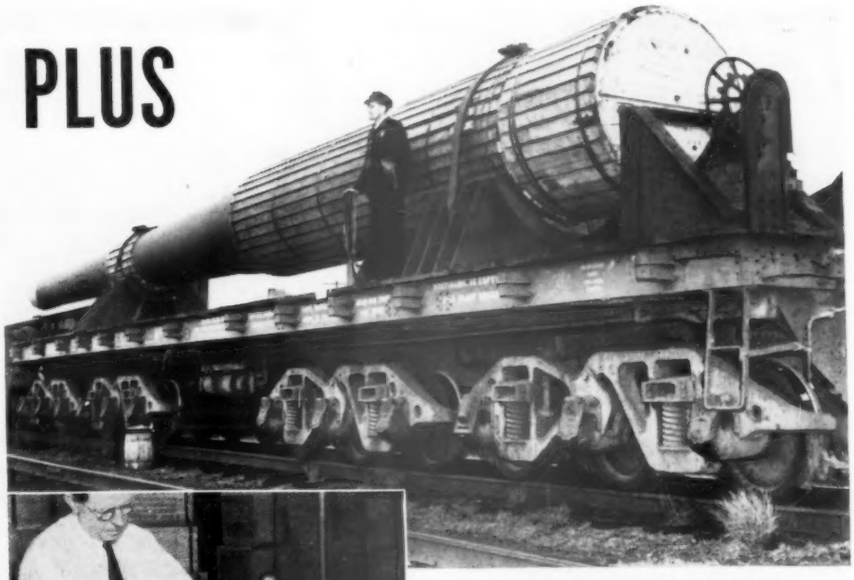
Boxes and packages are being subjected to more severe handling than ever before in the history of shipping. Freight cars must be loaded to their marked load limit or to their visible capacity.

Stanley Steel Strapping protects individual packages.

For safe maximum loads in freight cars either "floating" or "anchored", use Stanley Car Banding.

Regardless of size, shape or type of shipping unit, Stanley offers Steel Banded Protection.

We offer the services of Stanley Packing and Shipping engineers without obligation.



THE STANLEY WORKS
Steel Strapping Division
NEW BRITAIN, CONN.

1843 STANLEY 1943
TRADE MARK

Steel Strapping and Car Banding Systems

A LIGHTING FIXTURE HAS A BIG RESPONSIBILITY IN A WAR PLANT

Here are the Answers..

to questions that contractors, wholesalers, engineers, chief electricians, maintenance and purchasing departments are asking about Fluorescent Lighting fixtures

1. How can I be sure of getting dependable lighting fixtures?

By specifying fixtures that have been tested and certified for electrical, mechanical and lighting efficiency by independent experts. Certified FLEUR-O-LIER fixtures meet 50 definite standards set up by MAZDA lamp manufacturers to assure dependable performance. They are tested and *Certified* to those standards by Electrical Testing Laboratories, Inc., of New York.

2. Who makes these tested and certified fixtures?

Certified FLEUR-O-LIERS are made by over 40 leading fixture manufacturers. Any fixture manufacturer who complies with the FLEUR-O-LIER requirements may participate in the program.

3. What are some of the points checked by this testing?

Some of the most important specifications checked by Electrical Testing Laboratories are: High power factor, flicker correction, certified ballasts and starters, brightness control, safety, maximum light output, correct heat dissipation and many others.

4. Don't other makes of fixtures have these features?

Perhaps. But you can be sure of them *all* in Certified FLEUR-O-LIERS. And because they are Certified by E.T.L., any further test or check by the user is unnecessary.

5. Do FLEUR-O-LIER fixtures have non-metallic reflectors?

Many FLEUR-O-LIER Manufacturers now make Certified fixtures using non-metallic reflectors, conforming to WPB order L-78 (Amended) and U.S. Bureau of Standards Specifications. FLEUR-O-LIER specifications also cover these units.

6. How can I tell FLEUR-O-LIERS from other fixtures?

FLEUR-O-LIERS are easily recognizable by the Certification label shown on every fixture. Make sure this label is on the fixtures you specify to assure dependable lighting performance and operation.

7. Are FLEUR-O-LIERS now available—and on what basis?

They are now available on a suitable priority to war plants. Ask your supplier or, for a complete list of manufacturers, write FLEUR-O-LIER Manufacturers, 2139-1 Keith Building, Cleveland, Ohio.

NEW! Booklet giving complete FLEUR-O-LIER manufacturing specifications. All technical information for architects, contractors, wholesalers, engineers and purchasing departments on electrical, mechanical and lighting standards as set up for CERTIFIED FLEUR-O-LIER fixtures. Write NOW to FLEUR-O-LIER Manufacturers, 2139-1 Keith Building, Cleveland, Ohio.

FLEUR-O-LIERS

CERTIFIED FIXTURES FOR FLUORESCENT LIGHTING

Participation in the FLEUR-O-LIER MANUFACTURERS' program is open to any manufacturer who complies with FLEUR-O-LIER requirements

JUST LIKE THAT
— it cuts metal — bolts up to ¾" diameter, and with special jaws cuts case hardened steel. Sizes from "hip pocket", little 3½ foot giant. Stock models to meet cutting conditions and working problems. Every one of amazing capacity, endurance and ease of operation. Fine tools of precision built by skilled tool makers. Send for this catalog giving valuable information about time and labor saving in using two-hand portable metal cutters. Note: We are using every available machine and every available man, twenty-four hours a day, to meet Government requirements, and especially to meet our jobbers' needs with the earliest possible shipments.
H. K. PORTER, INC.
Everett, Mass.
HKP
PORTER CUTTERS
SEND FOR CATALOG
PORTER
BOLT CLIPPERS

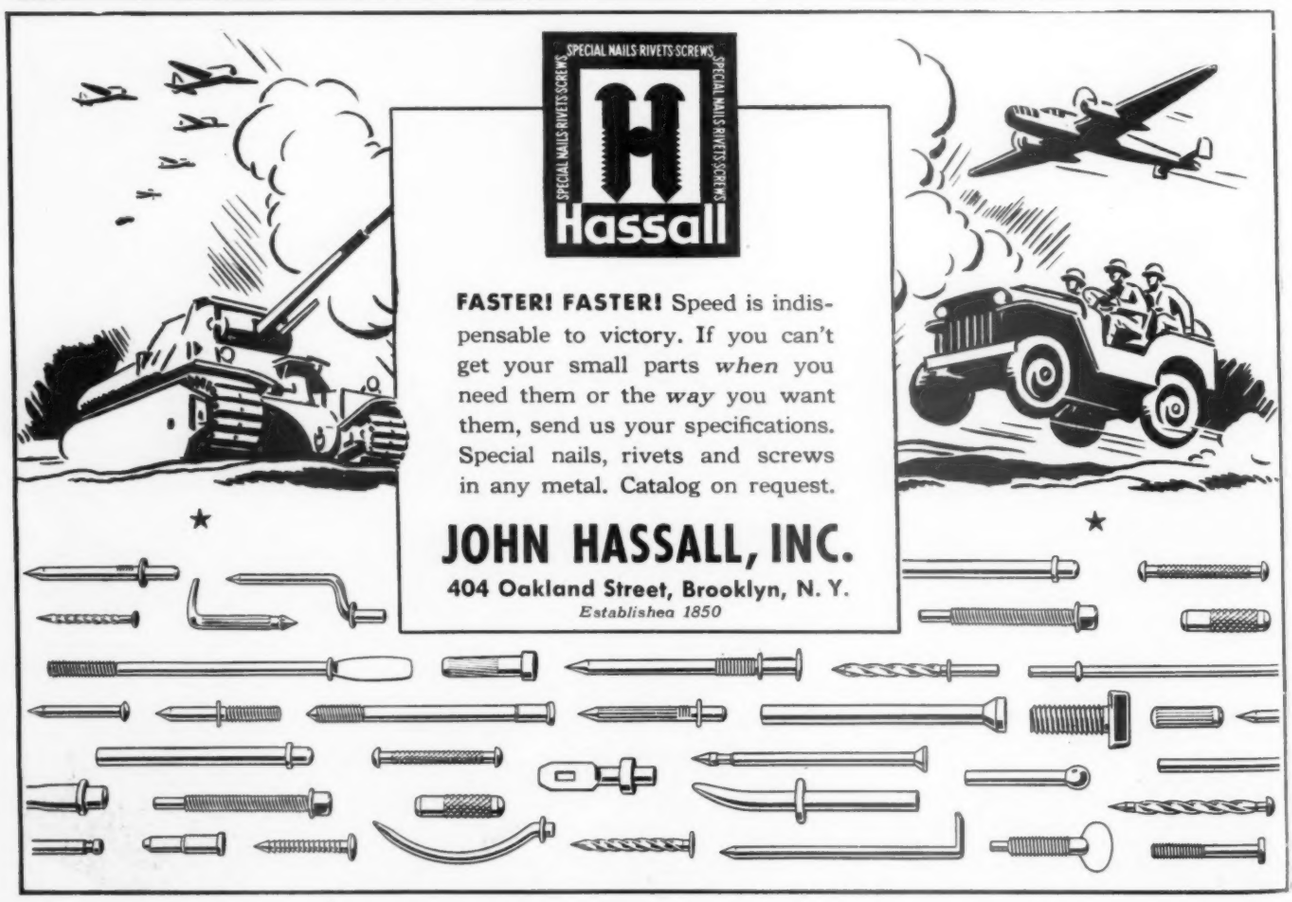
(Continued from page 200)

agricultural commodities and livestock, the underlying trend will continue to move definitely upward. Absolutely no fireworks in the price structure are in prospect. However, reflecting increasing producing costs, higher wages and transportation rates, the tendency will be to puncture maximum levels from time to time, and our estimate is that the average of commodity prices in 1943 will hold at least 6% over the level in 1942. Briefly, control enforcements will prevent any runaway movement, but fundamentally, economic trends underneath the surface are bound to force commodity prices slowly upward.

* * *

PLASTIC SUBSTITUTE FOR STEEL AND OTHER METALS

Plastic compositions which are claimed to be possible replacements for steel or other scarce materials, in various uses ranging from containers for food products to automobile license plates, conduits, Lally columns, and so on, are being manufactured by incorporating with various cellulosic fibers a resin powder known as Vinsol extracted by Hercules Powder Company chemists from Southern pine, according to the Patent and Licensing Corp., New York. It is an edition to the growing family of resin-treated laminated paper products, and is described as a lightweight, thermoplastic fibrous-resin composition, that is hard, dense and stiff with reasonable toughness. It is claimed to have high resistance to petroleum products, and low water absorption. Can be made in thick sheets or thin sheets. Vinsol is said to be in ample supply, and fibers used in composition are non-critical.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FASTER! FASTER! Speed is indispensable to victory. If you can't get your small parts *when* you need them or the *way* you want them, send us your specifications. Special nails, rivets and screws in any metal. Catalog on request.
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Established 1850

TRADE C-O-TWO MARK REGISTERED

PROTECTS GRAND COULEE

Man's greatest structure—Grand Coulee—alone it will generate more hydroelectricity than the 241 power plants in the states of New York, Massachusetts and Pennsylvania. Already it is in war production and its giant turbines are generating power to produce 30 per cent of the aluminum for our ships of the skies. Here at Grand Coulee, as at Boulder Dam, Bonneville Dam, and other mighty power plants, gargantuan turbines, transformers and oil storage vaults are protected against fire at all times by C-O-TWO automatic and manually operated fire extinguishing systems and C-O-TWO portables.

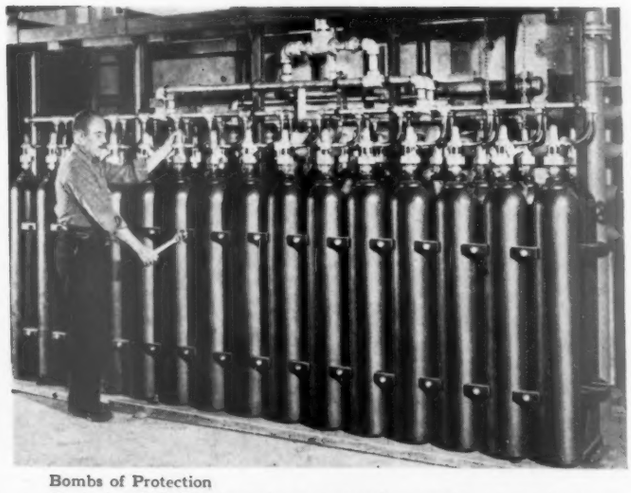
The Firing Line
Two of the 108,000 kw. generators, only one-ninth of the Grand Coulee ultimate installation, C-O-TWO protected.

IT'S SAFER *because* IT'S FASTER

All C-O-TWO equipment employs carbon dioxide, the fastest non-damaging fire extinguishing agent. There are C-O-TWO systems with fixed piping installations to give fire protection for generators of the closed or semi-closed type, transformers and oil storage rooms. C-O-TWO hand or wheel type portables and hose reel units are available in various sizes to extinguish incipient fires before they spread to proportion requiring the built-in or hose reel type C-O-TWO extinguishers. C-O-TWO is recommended and approved for protecting oil, grease, paint, lacquer, alcohol, butane and other highly flammable chemicals against fires. C-O-TWO stops fire in split seconds without damage to machinery or materials.

Stepping Up Fighting Power
Grand Coulee giant transformers protected against fire with C-O-TWO equipment.

C-O-TWO is a registered trademark. To be safe, specify C-O-TWO and this company's name when ordering.

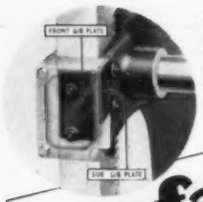


Bombs of Protection
Bank of 60 C-O-TWO cylinders to protect Grand Coulee oil storage rooms.

C-O-TWO FIRE EQUIPMENT COMPANY

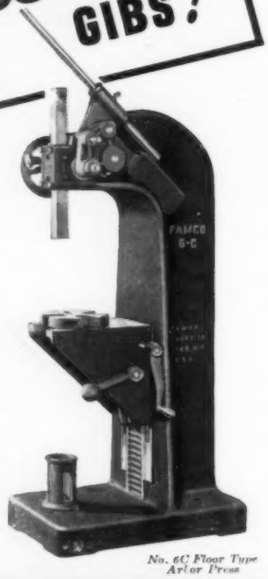
NEWARK, NEW JERSEY

Sales and Service in the Principal Cities of United States and Canada



Simple adjustment of front and side gib plates gives positive control of ram alignment — eliminates any variance.

ONLY famco OFFERS ADJUSTABLE GIBS!



You can always be sure of perfect ram alignment with Famco's exclusive adjustable gib control. Standard on all Famco Arbor Presses, it compensates for wear . . . eliminates "shimmy." That's why Famco Presses can step up production and assembly jobs in your plant. Write today for complete facts on Bench and floor types. *40 stock sizes* . . . half ton to 15 tons pressure.

FAMCO MACHINE COMPANY
1313-18th Street, Racine, Wis.

No. 6C Floor Type Arbor Press

famco FOOT AND ARBOR PRESSES

R. E. ZIMMERMAN RE-ELECTED PRESIDENT OF AM. STDS. ASSN.

R. E. Zimmerman, vice president of the U. S. Steel Corporation was re-elected to serve a third term as president of the American Standards Association, at the annual meeting of that body recently held in New York. George S. Case, Chairman of the Board, Lamson and Sessions Co., was made vice president. H. S. Osborne, American Telephone & Telegraph Company was re-elected chairman of the Standards Council, with E. C. Crittenden of the National Bureau of Standards as vice chairman. Five Organizations were elected to fill vacancies on the Board of Directors, namely, American Petroleum Institute, American Gas Association, Fire Protection Group, Association of American Railroads, and the American Institute of Electrical Engineers.

Joseph L. Weiner, Deputy Director, WPB Office of Civilian Supply, guest speaker at the meeting, stated: "It is now estimated that only 1½% of the total steel expected to be produced in 1943 will go into consumer products. Practically all of that will be required for the maintenances of houses and durable goods already produced and in use. Similar curtailments are necessary in the usage of other metals—copper, aluminum, etc."

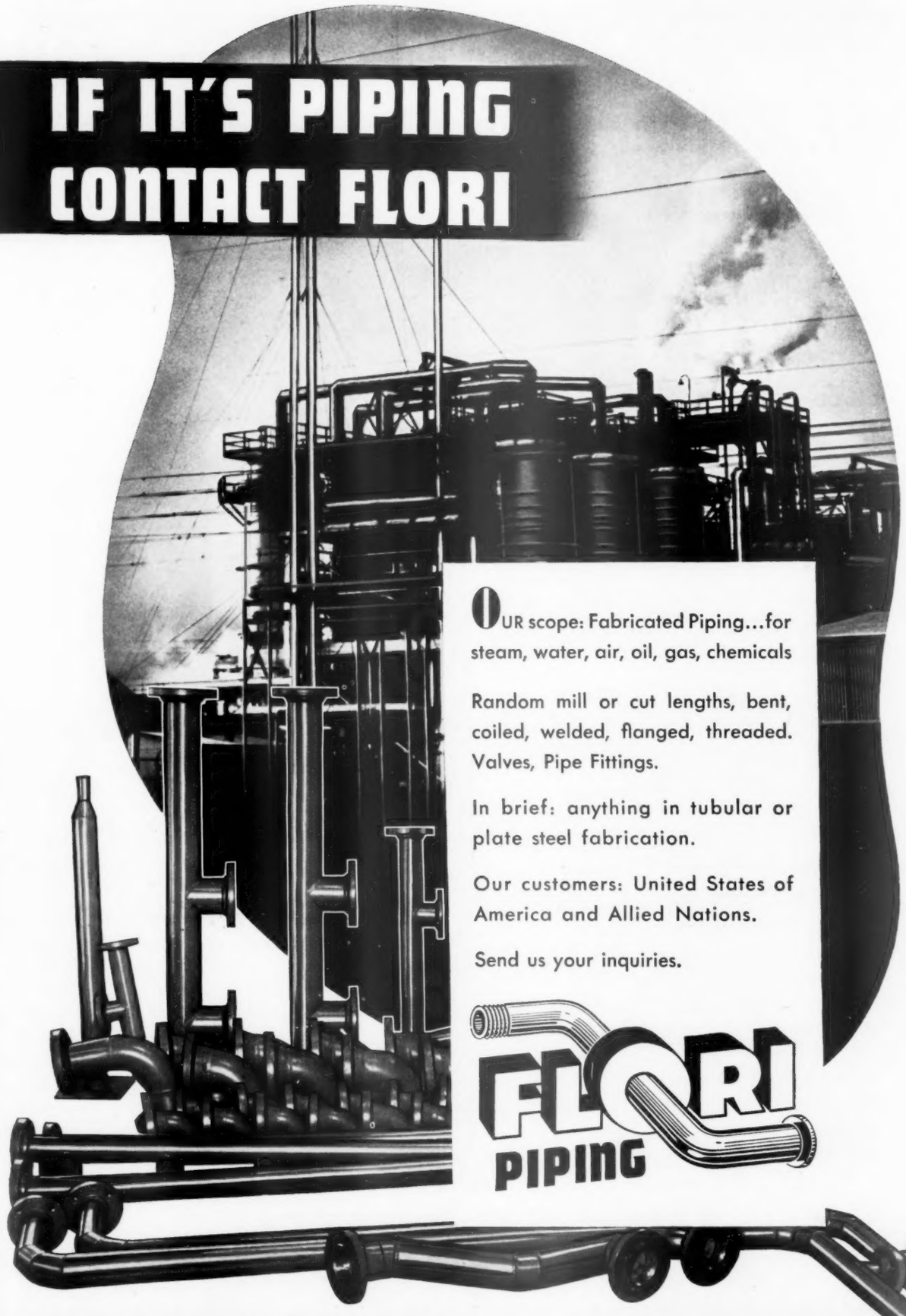
Briefly reviewing the work of the association the past year, Mr. Zimmerman reported that under contract with the government (OEM), the Association is engaged in varied standardization programs for the WPB and OPA. Standard for men's safety shoes is about ready for publication, and a similar project on women's shoes has been started. Standardized meth-

(Continued on page 208)

On Their Way!
WITH OUR FIGHTING MEN

NEWTON SCREW MACHINE PARTS
THE NEWTON MANUFACTURING CO., PLAINVILLE, CONN.

IF IT'S PIPING CONTACT FLORI



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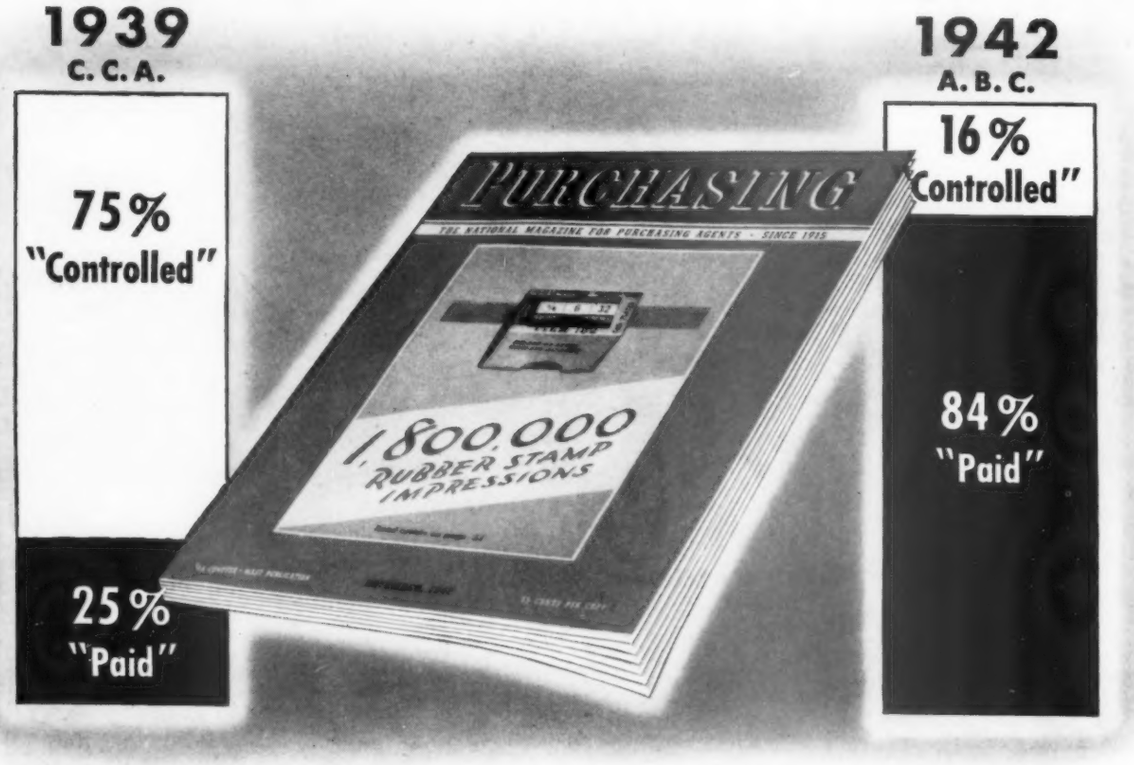


PURCHASING'S "paid" circulation jumped from 25% to 84% in three years!

In 1939, when Conover-Mast acquired PURCHASING, the circulation was 5,361 "controlled" subscriptions and only 1,871 "paid." Today, nearly 84% of all subscriptions have been converted to "paid" . . . and total circulation has grown to 8,398! This is evidence of reader-interest never equalled by another industrial publication.

Accomplished without "Tricks"

Aggressive, useful editing is the only explanation for this record conversion. For, PURCHASING employs no high-pressure circulation methods . . . no special rates, no subscription salesmen. Its "controlled" circulation is merely sampling to enable purchasing executives to learn its unusual editorial value.

Reaches Buying Executives

PURCHASING goes to the executives of every centralized purchasing departments . . . the men who *rule* war-plant procurements. They are your *first* contact to get your products on the "approved list." And they hold *final* authority in making selections from this list.

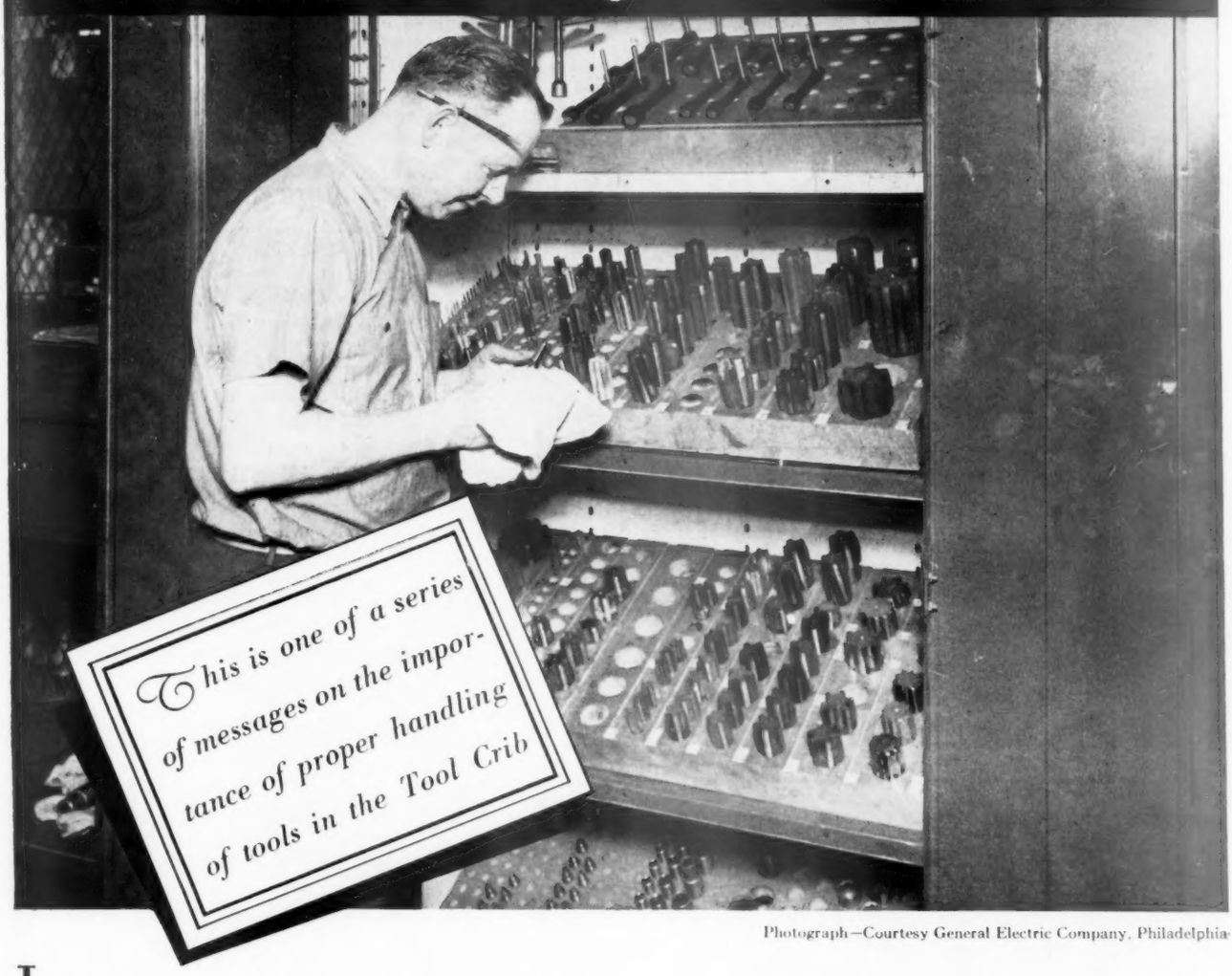
Advertise in PURCHASING, and you'll reach this important group without waste or omissions. PURCHASING is the *National Magazine for Purchasing Executives!* PURCHASING, 205 East 42nd St., New York; 333 North Michigan Ave., Chicago; Leader Bldg., Cleveland.

PURCHASING

THE NATIONAL MAGAZINE FOR PURCHASING EXECUTIVES

A CONOVER-MAST PUBLICATION

Tool Conservation begins in the Tool Crib



Photograph—Courtesy General Electric Company, Philadelphia

LONG, efficient tool life may be as much due to care in receiving, storing and handling in the Tool Crib as to proper use *out* on the job.

Here is an example of a carefully thought-out tool crib arrangement that pays substantial dividends to its plant in dollars and time saved. After use each Tap is carefully wiped clean of grit and chips before being restored to its proper place. The shank is placed in its individual recess, leaving the cutting edges free from chance blunting or chipping against other Taps.

This arrangement takes into consideration the size, shape and physical peculiarities of these tools to insure safety of storage, speed of locating and ease of handling.

GREENFIELD TAP AND DIE CORPORATION
GREENFIELD • MASSACHUSETTS
DETROIT PLANT: 5850 Second Boulevard
WAREHOUSES in New York, Chicago and Los Angeles
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GTD GREENFIELD

TAPS · DIES · GAGES · TWIST DRILLS · SCREW PLATES

When writing Greenfield Tap and Die Corporation please mention Purchasing

od for protective lighting of industrial properties is about completed. Program of standards for materials and parts for military radio is unifying requirements of the Army, Navy, and contractors, and is ironing out many kinks in production and procurement. A drastic simplification program for repair parts for civilian radio is being started.

The association now has a full-time field representative in South America.

ACRYLIC PLASTICS NOW UNDER COMPLETE ALLOCATION

Acrylic resins have been placed under complete allocations control through General Preference Order M-260. Because of their transparency, impact strength and dimensional stability they are most useful in many war uses. The acrylics include such products as Lucite, Plexiglas, Acryloid, Crystalite and similar plastics. They are being used in aircraft, combat boats, optical equipment and instrument lenses, as well as for protective coatings of leathers and synthetic rubbers.

TUNG OIL SUBSTITUTE

What is claimed to be a satisfactory substitute for Chinese tung oil which is used extensively in varnish and paint manufacture, is the subject of patent recently issued to R. A. Swain of Bellevue, Ky., rights being assigned to the Interchemical Corporation of New York. Raw materials for the new product are said to be ordinary linseed oil and maleic acid which are mixed in a closed kettle under an oxygen atmosphere, and heated for several hours at 400° Fahrenheit.

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Prevent costly accidents —

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The most important asset in your plant is your trained manpower. With workers almost irreplaceable today, don't risk disabling accidents. Be sure you have adequate, dependable safety equipment to safeguard every hazardous operation in your plant. Pulmosan is ready to supply "everything for industrial safety" —or to advise on any safety problem. Tell us your needs for recommendation.

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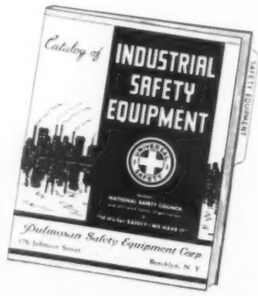
Illustrates and describes safety equipment for every hazard, every occupation, every industry. Pulmosan Safety Equipment Corp., Dept. P, 176 Johnson St., Brooklyn, N. Y.



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For EVERY IMPORTANT FASTENING

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The Cullman catalog lists sprockets and chains carried in stock, and gives information and tables of value to sprocket users. Write for your copy.

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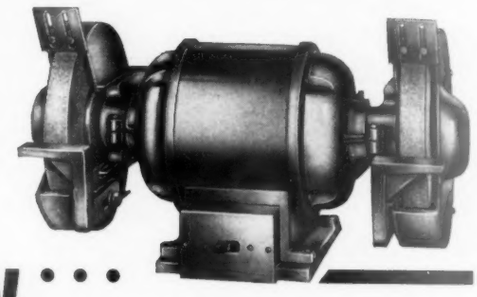
Valley Heavy Duty **GRINDERS**
Ball Bearing **MOTORS**



V • • •

VICTORY on the production front is being aided mightily by the economical and faithful service of thousands of Valley motors and grinders in war plants everywhere.

Prompt delivery of Valley Equipment can be obtained by those authorized to purchase.

Valley Ball-Bearing Motors from ½ h.p. to 75 h.p. . . . Grinders from ¼ h.p. bench type to 5 h.p. pedestal models.

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CLASS 2.00

QUALITY PROMCO BRAND

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Maximum Tool Life
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—Use CROBALT!

● A superior heat resisting chromium-cobalt-tungsten high speed cutting alloy. Permits higher speeds with longer tool life.

Eliminates the possibility of chipping. Combines maximum production with minimum cost per piece.

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Clue #3—*He does this often because The Lord Baltimore Hotel is perfect as business headquarters in the Baltimore-Washington territory.*

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Nearly 50 trains daily between Baltimore and Washington—two great centers of war activity.

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The **LORD BALTIMORE HOTEL**
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700 rooms—each with radio, tub and shower

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Full car shipments

ORDER OF THE DAY

Every car must be packed to the roof. This means taped cartons are being subjected to the worst punishment possible — especially in the load carrying zone. Here is where Safetex Gummed Tape really counts — where tape must be tough and able to "take it".

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with these NEW DELTA POWER-FEED DRILL PRESSES

You can get more output from the same number of operators by utilizing low-cost DELTA Power-Feed Drill Presses. They permit operators to perform additional jobs while the power-feed works automatically and quickly pay for themselves. And here's important news: These new Delta Power-Feed Drill Presses are priced considerably lower than the customary price ranges for drill presses of this quality.

Many Outstanding Features

The unusual design of the Delta Power-Feed unit, which operates directly off the bottom drive of the motor instead of off the spindle, makes possible a wide range of feeds, from .0010 to .016 inches per revolution of spindle in the Slow-speed drill presses and from .0005 to .009 in the High-speed machines. Other special features include: 1. Quick traverse by hand from starting position to work; 2. Instant switching from power to hand feed and reverse without changing or removing parts; 3. Safety lock for preventing damage to drill press when power feed is disengaged; 4. Adjustable automatic stop and return.

This new line includes single and multiple spindle 17" units, in slow speed and high speed models, with table raising or head raising mechanisms, powered with either Delta or standard NEMA frame motors.

Write for SPECIAL BULLETIN

Ask your nearest Delta Industrial Distributor for specifications and prices on the new line of Delta 17-inch Power-Feed Drill Presses or write direct to us.

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Output Increased with TUBULAR RIVETS

Don't use solid rivets — use tubular rivets with Chicago Automatic Rivet Setters, because tubular rivets with Chicago equipment speed up production and lower unit costs. Get all the facts, especially on your war products. Even though small solid rivets are specified, send us sample assemblies so that we can fasten them with proper tubular rivets and give you a production schedule. Then submit the tubular riveted assembly for governmental approval and you will invariably receive an O.K.

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MECHANICAL RUBBER PRODUCTS

GUNS, tanks, planes, ships, even the food he eats—it is difficult to think of a single item with which the American soldier or seaman must be equipped that is not produced for him with the aid of mechanical rubber belting or hose. For example. in the various processes that all go together to make him the world's best fed fighting man, rubber products serve countless essential duties from the farm to his mess kit—the farmer uses certain types of transmission and conveyor belting for threshing and other equipment, needs spray hose for his orchards . . . dairy plants employ extensive amounts of belting and hose for both operating and sanitation purposes . . . food processing plants depend upon special acid-resisting, odorless conveyor belts, as well as other rubber goods . . . canning and packing plants also use much belting, many kinds of hose. These and many other phases of food production, preparation, preservation and transportation comprise a major field of mechanical rubber application. And so it is throughout the fields of metals or wood, chemicals or textiles—mechanical rubber is an essential servant of the industries that are making the things that will win this war for America.

Republic has specialized exclusively, for over forty years, in the development and manufacture of industrial rubber products. Keeping abreast of modern requirements, Republic engineers and chemists are also doing a noteworthy job on the increasing application of synthetics. REPUBLIC RUBBER DIVISION OF LEE RUBBER & TIRE CORP., YOUNGSTOWN, OHIO.

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"Greatest efficiency and dispatch in suppling and servicing equipment needs of industry" has long been the firm principle upon which the Industrial Distributor has based his business. Today, his services are more often a necessity than an advantage. Call on your Republic Distributor for the best answer to your rubber and other equipment maintenance problems.

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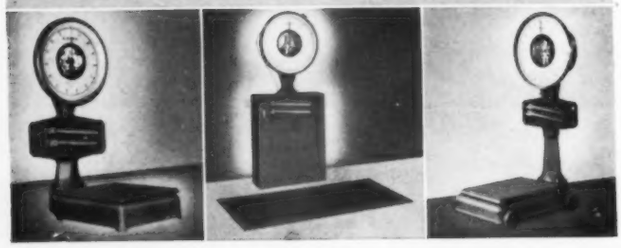

RIGID CONSERVATION OF RUBBER ESSENTIAL

Rubber Director William M. Jeffers, in Progress Report No. 1 submitted to Chairman Donald M. Nelson, War Production Board, declares that "There is every necessity for continuing through the critical fall of 1943 a policy of rigid conservation of rubber, and that we must envisage at that time the possibility of a complete exhaustion of even so-called normal inventories of finished products."

Quoting the Baruch Report in placing total requirements of natural and synthetics rubbers at 577,000 tons for 1943, 672,000 tons for 1944, Mr. Jeffers reports that, "Present indications are that our domestic accumulated inventory of crude and synthetic rubber at the end of this year may approximate 400,000 long tons. If it were not for other programs over which we have no control it seems probable that the accumulated production of synthetic and imports of crude rubber might be as much as 175,000 tons by September 30, 1943, and 390,000 tons by the end of 1943." But even if these objectives are obtained, he declares that the inventory of crude and synthetic rubber in the fall of 1943 will, to all practical purposes, be down to the absolute dangerous inventory dead-line of 120,000 tons, and by the end of 1943 will have been built up to only 175,000 tons.

In addition to existing plants and plants under construction, the report states that plans for building plants to make an additional 30,000 tons per year of Buna S from Butadiene made from grain, are being studied by the technical staff. However, because of lack of materials, largely in the fabricated components, construction of butadiene plants in the main program is behind schedule, and Mr. Jeffers emphasized that unless these components for synthetic rubber manufacture reach the plants as rapidly as they can be installed, "the resultant delay will cause such a drain on the crude rubber stocks that there may be no crude left for heavy-duty tires, self-sealing gasoline tanks, and other military uses which demand crude rubber."

Facilities for the manufacture of a considerable tonnage of Buna S are already finished, but the report states that these units are being run at less than one-fifth of their capacity because of the present unavailability of butadiene. Producing plants are expected to be shipping butadiene early in the year but "these increments constitute only a little more than 5% of the ultimate program", the report declares.

In concluding his report Mr. Jeffers stated that the Office of Rubber Director has been organized and is, at least partially, staffed at every appropriate point with thoroughly competent, outstanding personnel.

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Important Announcement!

Effective January 1, 1943, the name of Scully Steel Products Company was changed to United States Steel Supply Company

Scully... for many years a member of the family of United States Steel Subsidiaries — now takes a name which more fully represents its ability to serve you with a comprehensive list of steels and steel products.

Only the name has been changed. The same personnel in our eight conveniently located warehouses will continue to do their best to take care of your needs.

The prompt and courteous service that has made the name "Scully" famous will be maintained.

The addresses and phone numbers of our warehouses remain the same.

As always, we stand ready to give our customers every help we can in getting the right steel as promptly as possible.

UNITED STATES STEEL SUPPLY COMPANY

Distributors of Steel and Steel Products

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Teletype CG. 605

BOSTON
STAdium 9400
Teletype BRTN 19

CLEVELAND
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Teletype CV 153

ST. PAUL-MINNEAPOLIS
NEstor 2821
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BALTIMORE
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ST. LOUIS
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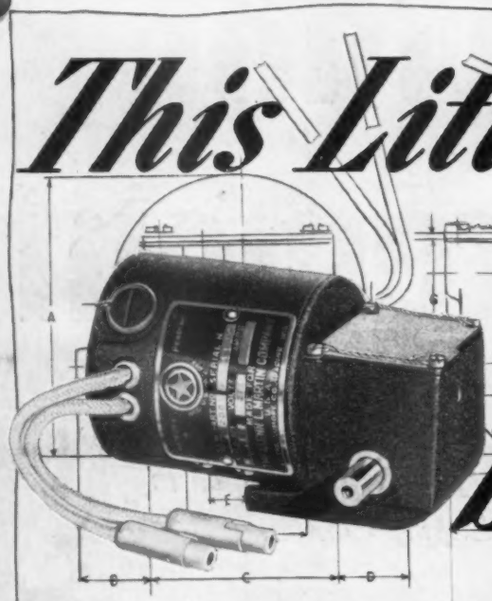
NEWARK, N. J.
BIgelow 3-5920—BErgen 3-1614—REctor 2-6560
Teletype NK 74

USS

UNITED STATES STEEL

When writing United States Steel Supply Company please mention Purchasing

This Little Motor Used to be Twins



DUMORE ENGINEERING PROBLEM NO. 5276

The request came from a manufacturer of fighting planes: "Design *one* motor for our ammunition booster units to take the place of *two*. It can weigh no more and take no more space than one of the two motors we are now using, yet it must have twice the horsepower!"

Dumore went into action. Night and day sessions in Dumore laboratories created a single 1/6 horsepower motor weighing only 2 lbs. 6 oz. capable of doing more than the work of the two formerly used.

Design was only the first hurdle; production was imperative. But Dumore engineering skill is geared to quantity production. 90 days after customer design approval, thousands of the new units were being installed in combat planes. This coordinated ability can solve your war production motor problems.

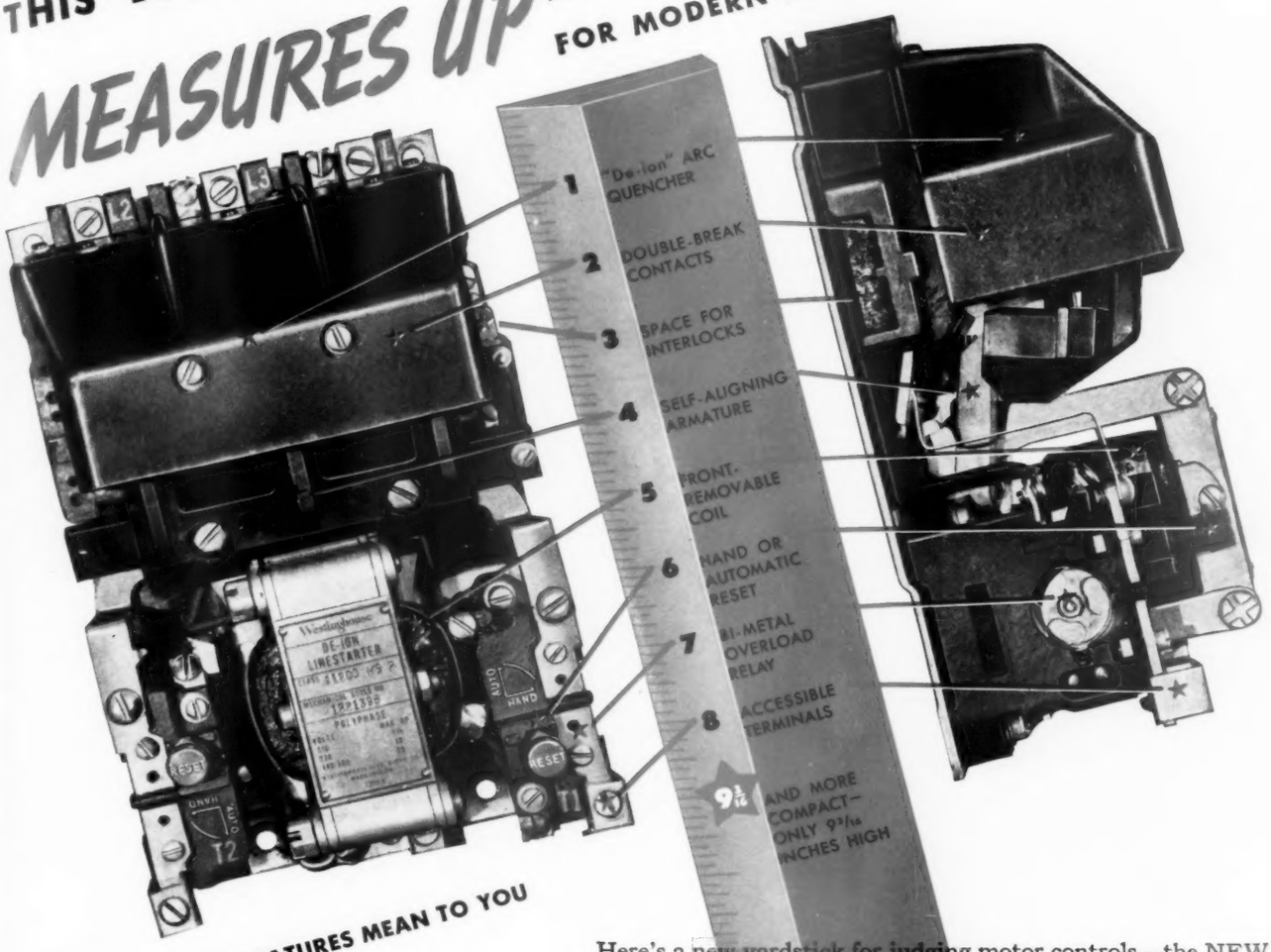
THE DUMORE CO., Dept. 353-A RACINE, WIS.

Dumore

FRACTIONAL HORSEPOWER MOTORS

THIS NEW SIZE 2 LINESTARTER

MEASURES UP TO ALL REQUIREMENTS FOR MODERN MOTOR CONTROL SYSTEMS



WHAT THESE NEW FEATURES MEAN TO YOU

1. "De-ion" action quenches the arc, prolongs contact life.
2. Double-break contacts eliminate shunts which fray and break.
3. Interlocks—as many as four—can be easily added.
4. Armature keeps true alignment of contacts, does not "wobble" with age.
5. Operating coil easily changed—front removable.
6. Overload relay may easily be made manual or automatic reset.
7. Bi-metal overload protection assures unchanging accuracy. Size 2 heaters are interchangeable with sizes 0 and 1.
8. Speedy installations . . . "straight-through" wiring.
9. Simplified design for group mountings.

Here's a new yardstick for judging motor controls—the NEW Westinghouse Size 2 Linestarter. It's totally new—redesigned to meet the space and operating requirements of today's machines.

Over-all dimensions are now smaller—making it ideal for group mountings and built-in applications. Yet there's no crowding—all parts and terminals are easily front-accessible.

The overload relay may be made either manual or automatic reset simply by twisting the relay reset button—nothing to remove or adjust.

In addition, this new unit has many other exclusive Westinghouse advantages. There's the safety of "De-ion" arc quenching and the dependable accuracy of Bi-metal overload protection. Write today for Bulletin 3185, giving complete details on the new Westinghouse Size 2 Linestarter. Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., Dept. 7-N.

J-21253

Westinghouse MOTORS AND CONTROLS

The Man Who Helps Win "E" Flags . . .

(but never gets a mention)

When the reward of merit is presented to industry today, there is a man who stands on the sidelines.

Yet he is a man to whom a great deal of the credit should go. He is the *Industrial Distributor.*

He would be the last one to ask for such recognition, because he cheerfully shoulders the extra burdens of today's tough supply problems as his part of the war job. Are you taking full advantage of the services he offers, some of them born of the present emergency?

Ask him for help in Design Diagnosis. He knows what is available, what isn't. He can often point out simple changes in specifications to allow the use of "standard" items from stock, when "specials" are unavailable.

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Ask your Jenkins Distributor for any facts you need about valve installations or maintenance.

Army-Navy "E" Pennant, awarded to Jenkins Bros. for high achievement in the production of war equipment.

Jenkins Bros., 80 White St., New York, N. Y.; Bridgeport, Conn.; Atlanta, Ga.; Boston, Mass.; Philadelphia, Pa.; Chicago, Ill.; Jenkins Bros. Ltd., Montreal; London, England.

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